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HINTS FOR DIAGNOSIS OF DISEASE OF GALLBLADDER AND OF BILIARY PASSAGES *

LEWELLYS F. BARKER, M.D.

BALTIMORE

When certain typical syndromes present themselves, diagnosis of diseases of the gallbladder and of the biliary passages is one of the easiest of the internist's tasks; but in the absence of these, disease of the biliary tract may nevertheless exist, and its detection, so important for the patient, may tax to the utmost the skill of most experienced clinicians.

In the time allotted, the subject chosen must be dealt with in summary fashion, and I shall therefore dispense with any detailed elaboration, confining myself to brief mention of the points in the anamnesis, the physical examination, the roentgen-ray reports and the laboratory findings that I regard as most helpful in making a general diagnosis in the domain under consideration. At the end of the paper, I shall epitomize the combined findings that characterize the more important special biliary disorders.

ANAMNESTIC DATA

In the anamnesis the points to be considered when one suspects a disease of the gallbladder or of the biliary passages are: (1) the age, sex, occupation and habits of the patient; (2) a history of gallbladder disease or of gallstones in the family; (3) a history in the patient of one or more infections believed to predispose to the development of gallbladder disease; (4) a history of digestive disturbances, or of general impairment of health, common in gallbladder disease; (5) a history of typical attacks of biliary colic, or of atypical pains in the right hypochondrium, and (6) a history of jaundice, or of chills and fever.

Age, Sex, Occupation and Habits.—Diseases of the gallbladder occur predominantly in middle and later life. Cholelithiasis and cholecystitis may, it is true, occur in early life and even in childhood; but they are relatively rare before middle life. Indeed, as far as gallstones are concerned, the incidence increases steadily as life advances.

Statistics show that in one of every ten or twelve adults who come to necropsy, gallstones are found in the gallbladder, though only about 10 per cent. of those who carry gallstones suffer from marked symptoms due to them. On the basis of these statistics, one can roughly estimate the total number of gallstone carriers in a given country, and also the approximate number of those whose health is seriously affected by them.

Women, as is well known, are definitely more disposed to gallstones than are men, the ratio of incidence in the two sexes being as three or four to one. It is believed that the tendency to sedentary life, the wearing of corsets, and the occurrence of pregnancy, are the factors that predispose women strongly to gallbladder stasis, to gallbladder infection, and to the development of gallstones.

Occupation and habits are, doubtless, contributory factors in the etiology in both sexes. A sedentary mode of life, overindulgence in food, insufficient regular exercise, obesity, and especially chronic constipation all favor stagnation of the bile and its sequels.

Heredity and Familial Factors.—The proof has not yet been brought that heredity plays a definite part in the etiology of gallbladder disease. Despite this lack of actual proof, however, many clinicians have gained the impression that gallbladder disease is much more common in some families than in others. It has been suggested that a congenital disturbance of the cholesterin metabolism may be responsible and that this, perhaps, is the reason why gallbladder disease seems to be common in families disposed to migraine, diabetes, obesity and arteriosclerosis. More work on the subject must be done before the view that hereditary and familial factors are responsible dare be accepted.

Infections that Predispose to Gallbladder Disease.—Biliary stasis usually precedes gallbladder infection and the development of gallstones, but actual inflammation of the gallbladder and gallducts is nearly always due to a complicating infection. It is a matter of common knowledge that certain general and local infections often precede the outbreak of attacks of biliary colic, and it seems probable that the excretion of bacteria into the bile as the result of such infections is the common cause of the development of cholecystitis in a gallbladder in which stasis exists.

Typhoid fever seems especially to predispose to the development of gallstones and to cholecystitis. From the writer's own person, four large gallstones were removed by Dr. Finney thirty-five years after a typhoid infection in the eighth year of life, and Dr. Charles R. Austrian, who at the time of operation was our clinical bacteriologist, demonstrated by cultural methods the presence of living typhoid bacilli within the interior of one of the gallstones!

Other infections, believed to be sometimes responsible, are puerperal fever, influenza, appendicitis, colon bacillus infections, tonsillitis, paranasal sinusitis, chronic oral sepsis, infectious arthritis, chronic ulcerative enteritis, and postoperative pyogenic infections.

* Read before the Section on Practice of Medicine at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

History of Digestive Disturbances, or of Impairment of the General Health.—In most gallstone carriers, outspoken symptoms are not manifest, attacks of biliary colic, especially, often being absent for many years. But so-called "latency" rarely means entire absence of symptoms. As one of the wisest of our American surgeons has put it, "Innocent gallstones are a myth."

Patients with chronic cholecystitis, or with gallstones, are prone to complain of certain digestive disturbances, often lasting many years before their true origin is discovered or even suspected. These digestive disturbances have been described by many writers, notably by B. G. A. Moynihan (1908), A. W. Mayo-Robson, and John Bland-Sutton in England, and by W. J. Mayo, J. B. Deaver, A. O. J. Kelly, J. B. Murphy, H. C. Moffitt, J. B. Elliott, W. F. Cheney, A. Bassler, J. A. Lichty, G. A. Henderson and others in this country, under the name "gallbladder dyspepsias" or "the inaugural symptoms of gallbladder disease." At present, the careful clinician, confronted by a patient who complains of recurring attacks of "indigestion" but in whom he cannot by a thorough diagnostic study find further evidence definitely incriminating stomach, duodenum, gallbladder or appendix, does well to make the note "Suspect right abdomen, to be watched," in order to make sure that the patient shall be checked up from time to time until the true explanation of the condition is arrived at.

Among the symptoms of "indigestion" referred to, gaseous eructations, flatulence, epigastric pains of variable intensity, heaviness, a sense of constriction, or a "dragging feeling" under the right rib margin, heartburn, persistent constipation, and attacks of mucous colitis may be especially mentioned. Such symptoms often follow indiscretions in diet, alcoholic indulgence, railway travel, horseback riding, or automobile riding over rough roads. They often become prominent also during menstruation, or after emotional disturbances of any sort (anger, excitement, worry or sexual intercourse).

It cannot be too strongly emphasized that a large proportion of symptoms referable to the stomach are of reflex origin, due to lesions in or about the gallbladder, in the appendix, in the duodenum, or elsewhere in the abdomen. A distinguished Philadelphia surgeon is, I believe, responsible for the diagnostic aphorism, "Woman, fat, 40, belches gas—gallstones!"

In persons in middle life, whose general health is impaired without easily discernible cause, the possibility of the existence of an obscure disease of the gallbladder should always be kept in mind, and the right upper quadrant of the abdomen from time to time investigated. Who of us does not recall more than one such case in which the chronic invalidism has quickly disappeared after the discovery and removal of a biliary infection?

History of Typical Attacks of Biliary Colic or of Atypical Pains in the Right Hypochondrium.—In typical biliary colic, there is sudden pain in the right hypochondrium or in the epigastrium, a pain that often radiates to the back or to the right shoulder, neck or arm. It is usually accompanied or followed by nausea, vomiting and symptoms of shock, sometimes by fever and chilly sensations. The attack lasting from a few minutes to a few hours, is followed, for a few days, by aching and soreness beneath the right costal margin. Not infrequently a tinge of jaundice can be made out in the sclerae, or a trace of bile can be discovered in the urine, by Gmelin's test, after the attack. Such an attack is more than a "hint"; when it occurs one can be very sure that gallbladder disease exists, and that, in all probability, both cholecystitis and gallstones are present, though typical hepatic colic may occur in the absence of gallstones.

Less typical pains in the right hypochondrium or epigastrium may, however, be puzzling to the practitioner; for though they may be due to spasm of the gallbladder or of the bile ducts, they may depend on increased gastric tension, on pylorospasm or on spasm of the wall of the intestine, and the causes of such conditions must be sought with the aid of a general diagnostic survey. It should be borne in mind, too, as has been emphasized above, that even when the pain is due to gastrospasm or to enterospasm, the primary cause may lie (1) in a gallbladder exerting a reflex influence, or (2) in pericholecystitic adhesions.

History of Jaundice, or of the Occurrence of Chills and Fever.—A history of jaundice should make one keep the gallbladder and the bile ducts in mind. By far the majority of cases of disease of the gallbladder are not accompanied by jaundice. When gallstones and cholecystitis are present, jaundice is encountered in only 10 or 20 per cent. of the instances (Kehr), and it may be absent even when there are stones in the ductus choledochus, though it is present in 70 per cent. of the cases of choledochitis. Jaundice associated with biliary colic usually points to stones, but this association also occurs in the entire absence of gallstones. A steadily deepening jaundice, without remissions and unassociated with pain, points to the head of the pancreas (carcinoma; pancreatitis); it is believed by some that "catarrhal jaundice" depends on obstruction to the ductus choledochus from an associated pancreatitis. Jaundice after middle life along with palpable nodular mass in the right hypochondrium usually means carcinoma of the gallbladder. Marked jaundice with a large, soft liver points to some form of hepatitis, and if the liver is painful and the patient has chills, fever and leukocytosis, one must think of (1) infectious cholangitis associated with stones in the ductus choledochus or in the hepatic ducts, or (2) hepatic abscess. The "intermittent fever of hepatic origin" described by Charcot and by Osler usually means stone in the common duct with choledochitis. Even when there is no jaundice, if a patient continues to have chills and fever and no other adequate explanation can be found, the possibility of the existence of a pyogenic infection of the biliary passages should not be forgotten.

PHYSICAL EXAMINATION OF THE ABDOMEN

If one analyzes a large series of reports of the general physical examinations made in patients in whom he has finally arrived at a diagnosis of disease of the gallbladder or bile ducts, he may be surprised to find how few, in the obscure cases, the positive findings referable to the gallbladder and the liver have been. In the easily recognizable cases, palpation, percussion and even inspection may give the necessary clues.

When one can palpate, or see, an enlarged gallbladder, or a Riedel's lobe, or when palpation in the right hypochondriac region elicits outspoken tenderness or muscle spasm, one can feel fairly sure at once that he is dealing with stasis, with infection, or with both. It is exceedingly rare that one can actually palpate gallstones; a nodular mass in the region of the gallbladder most often proves to be carcinoma.

But in obscure gallbladder disease, especially in mild cholecystitis, it may be difficult to secure any positive abnormal findings by inspection, palpation or percussion of the gallbladder area. Sometimes, by careful palpation, an overfull gallbladder may be felt, or a little tenderness may be elicited.

It is well to palpate first with the patient in the recumbent position, his head and shoulders slightly elevated, his thighs and knees flexed, his mouth open, and his attention diverted by conversation. The examiner's left hand is placed behind the patient while gentle superficial and, later, deeper palpation is performed with the right hand in front. Afterward, the examiner may sit behind the patient, encircle his waist with both arms as he reclines against the examiner's body, and then, during both inspiration and expiration, make gentle but deep pressure alternately in the right and in the left hypochondrium to determine whether more tenderness is elicitable on one side than on the other.

The method of verticai percussion over the gallbladder, devised by the late J. B. Murphy, is also helpful sometimes in eliciting local tenderness.

ROENTGEN-RAY EXAMINATIONS

Much misunderstanding still exists, both among laymen and among physicians, regarding the information that the roentgen ray can give us as an aid in the diagnosis of obscure gallbladder disease. In roentgen-ray plates or films as ordinarily exposed, gallstones themselves appear in only a small percentage of the cases in which they exist. It is only when the stones contain enough lime to throw a shadow that they become visible in the roentgen-ray plate. Pure cholesterin stones throw no distinguishable shadows.

Recently, it has been possible, by special preparation and by the help of oblique lighting, to demonstrate the presence of gallstones in a larger percentage of cases than formerly, some asserting that in from 45 to 50 per cent. of the patients harboring biliary calculi, there is enough lime in the stones to throw a shadow (Case, 1919). In certain instances it has been possible to secure shadows of stones in the ductus choledochus, as well as in the gallbladder (Arcelin, 1913; Béclère and Duval, 1919).

If a pericholecystitis causing adhesions to the pylorus, duodenum or hepatic flexure of the colon exists, characteristic roentgen-ray findings may sometimes be obtained; the anchorage of the pyloric end of the stomach to the right and upward, the immobility of the hepatic flexure, or the distortion of the duodenal cap due to the adhesions, may help the roentgenologist to the belief that a cholecystitis and a pericholecystitis causing adhesions have earlier been present. In many such cases, though by no means in all, there are also stones in the gallbladder. It is not, however, the diagnosis of gallstones that is most important; what we desire most to know is whether or not stagnation and infection exist anywhere in the biliary tract.

When adhesions are present in the right upper quadrant of the abdomen in the roentgen-ray plate, one must not forget that they may not necessarily be secondary to cholecystitis and pericholecystitis, but may rather arise from an adhesive peritonitis due to a duodenal ulcer or to an ulcer at the pylorus. Usually, however, the roentgen-ray examination, together with the anamnesis and the laboratory findings, will permit one to decide whether or not a pyloric ulcer or a duodenal ulcer is present.

STUDIES OF THE BLOOD, THE STOMACH CONTENTS, THE DUODENAL CONTENTS, AND THE FECES

A white blood count and a differential count of the white cells in a stained smear may be helpful in determining the degree of acuity of an inflammatory disease of a gallbladder or of the bile ducts. A positive Wassermann reaction may call the clinician's attention to an unsuspected syphilis of the liver that may sometimes simulate disease of the biliary passages. The demonstration of hypercholesterinemia favors the diagnosis of gallstones rather than of ulcer of the stomach or duodenum.

Patients with mild chronic cholecystitis early in their disease often have a gastric hyperacidity with heartburn and with epigastralgia due to the pylorospasm common in hyperacid states (Moynihan; Lichty; Kehr). In the later stages of chronic gallbladder disease, however, it is much more common to have a hypo-acidity than a hyperacidity. It has been common in my experience with patients suffering from the gallbladder diseases to find 10 acidity per cent. of free hydrochloric acid with a total acidity percentage of 15 to 30 in the stomach contents. Even a complete achylia gastrica is by no means uncommon in long-standing cholecystitis. The frequency of gastric hypoacidity in gallbladder disease has of late years been recognized by many observers, notably by Wohl (1912), Hohlweg (1912), von Aldor (1914), Hermando (1914), Ohly (1915), Hamburger (1917) and Fravel (1920). Rehfuss (1920) has observed hypersecretory phenomena in more than one half of his cases, and thinks that the low findings when present are due to long-standing duodenitis or gastric catarrh.

There seems to be some relationship between the function of the gallbladder and the secretion of hydrochloric acid by the stomach. After cholecystectomy, as is well known, it is common to have achylia gastrica and paroxysmal attacks of gastrogenous diarrhea. I have often wondered whether this relationship depended on a neuroregulatory mechanism, or on a hormone secreted by the gallbladder wall, as has been suggested by Leede. Here would seem to me to be a good opportunity for experimental investigation.

Examination of the duodenal contents (Einhorn, Schneider) may be helpful in the differential diagnosis of diseases of the right upper quadrant of the abdomen, particularly when there is obstruction to the outflow of bile into the duodenum, either from gallstones, on the one hand, or from disease of the head of the pancreas, on the other. Entire absence of bile from the duodenal contents in jaundice favors the diagnosis of obstruction due to disease in the head of the pancreas, whereas the presence of a little bile is more common in obstruction of the bile duct or papilla by stone.

Recently, a new method of utilizing the duodenal contents for the study of conditions within the biliary passages has been introduced by Lyon of the Medical Clinic at Jefferson Hospital, Philadelphia. Lyon's method is based on Meltzer's discovery that the introduction of magnesium sulphate solution into the duodenum is followed by relaxation of the sphincter of the bileduct and by outflow of bile into the duodenum. By means of the duodenal pump, Lyon is able successively to secure (1) duodenal contents (mixed with magnesium sulphate solution), (2) contents of the ductus choledochus, (3) contents of the gallbladder, and (4) contents of the hepatic duct. Chemical and

bacteriologic studies can then be made of these several bile fractions. The method promises to be useful, not only in the diagnosis of diseases of the gallbladder and of the biliary passages, but also, perhaps, in therapy.

Examination of the feces may be helpful for the differential diagnosis of the biliary passages. Occasionally a smaller or a larger gallstone may be found in the feces, but the method of looking for gallstones in the feces is so time-robbing that one is scarcely repaid for one's trouble in undertaking the search. Occult blood may sometimes be found in the feces in gallbladder disease; indeed, sometimes quite extensive hemorrhages occur into the intestines in these cases, though their origin is not as yet satisfactorily explained. The presence of occult blood, therefore, does not, in differential diagnosis, necessarily mean that a duodenal ulcer or a gastric ulcer is present to the exclusion of gallbladder disease. Chemical examinations of the feces for neutral fat and for free and combined fatty acids have been used for differentiating between the pancreatic disease and disease of the biliary passages in cases of intestinal acholia.

DIFFERENTIATION OF DISEASES OF THE BILIARY TRACT FROM OTHER DISEASES

Diseases of other parts of the body may yield symptoms that simulate those of the biliary tract. It is not surprising, therefore, that mistakes in diagnosis should be made in either one of two directions, namely, (1) in mistaking biliary disease for one of the diseases yielding symptoms that resemble it, and (2) in mistaking one of these simulators for biliary disease.

I need only mention (1) renal colic, (2) Dietl's crises, (3) intestinal colic, including lead colic and mucous colitis, (4) angina abdominis, (5) gastric crises of tabes and the pains in (6) atypical appendicitis, (7) gastric ulcer, (8) gastric cancer, (9) duodenal ulcer and (10) pancreatitis to remind you of conditions that may be confused with biliary colic.

Infectious choledochitis with chills and fever may also be easily mistaken for other infectious processes, especially if jaundice is absent or slight. Malarial fever, suppurative pyelitis, endocarditis lenta, unrecognized tuberculosis or syphilis, and obscure septic processes of various sorts (pylephlebitis, cryptogenetic sepsis, etc.) are examples of such processes.

In nearly all cases, if a careful anamnesis is recorded, a thorough general physical examination made, and suitable laboratory and roentgen-ray tests undertaken, sufficient data will be collected to yield, on reflection, the clues to a correct diagnosis.

THE MORE CHARACTERISTIC BILIARY TRACT SYNDROMES

In conclusion, a summary of the principal findings (anamnestic, physical, roentgenologic and chemical) that pertain to certain of the more typical syndromes of diseases affecting the biliary passages may be found convenient.

1. *Acute Cholecystitis (Mild).*—Mild "indigestion"; slight pain and tenderness in the right hypochondrium; sometimes, a palpable gallbladder; slight fever and slight polymorphonuclear leukocytosis; symptoms often subsiding in a few days on rest in bed, light diet and local thermotherapy.

2. *Acute Cholecystitis (Severe).*—Symptoms more severe than in the preceding; nausea and vomiting common; gallbladder distended and very painful on palpation as a rule; upper right rectus rigid; leukocytosis of from 12,000 to 20,000; fever; sometimes chills, especially if exudate is seropurulent; signs of peritoneal irrigation; need of immediate operation. If the patient is very toxic, the gallbladder may be gangrenous. The condition may be mistaken for acute appendicitis or for acute peritonitis due to perforation of a gastric or a duodenal ulcer.

3. *Chronic Cholecystitis, With or Without Gallstones.*—Attacks of "indigestion" or "biliousness" ("gallbladder dyspepsia", "inaugural symptoms") with fulness, weight and distention after meals, relieved by belching, but often followed by soreness and stiffness in the right hypochondrium lasting a few days. Sometimes there are characteristic attacks of biliary colic, most often nocturnal, with severe pain in the epigastrium and in the right hypochondrium, radiating to the back and often to the right shoulder, accompanied by gaseous distention and often by vomiting, and not infrequently requiring morphin for relief. The gallbladder may or may not be palpable (it is often shrunken). Tenderness on pressure in the gallbladder area is usually present. Roentgenograms may, or may not, show the presence of gallstones; they may reveal displacement of the pylorus upward and to the right, and distortion of the duodenal cap or of the pyloric and of the stomach, especially if there is a complicating adhesive pericholecystitis. Impairment of the general health is common.

4. *Acute Infectious Choledochitis.*—After an attack of biliary colic, jaundice develops with enlargement of the liver, tenderness in the midepigastrium and to the right of this, with fever and leukocytosis. If a stone is passed, the infection may subside quickly. Colic may or may not occur.

Recurring pyrexia with chills and sweats (intermittent fever of hepatic origin) points to purulent cholangeitis. There is persistent jaundice with bilirubinaria. The gallbladder is rarely palpable because usually small and shrunken from coexistent chronic cholecystitis. Operation is indicated.

5. *Chronic Catarrhal Cholangeitis (Calculous or Noncalculous).*—Chronic intermittent jaundice; sometimes, attacks of biliary colic; fever may be absent, or temporarily present; slight leukocytosis in exacerbations; may be confused with (1) carcinoma compressing the ductus choledochus or (2) hypertrophic biliary cirrhosis.

6. *Biliary Obstruction with Distention of Gallbladder Due to Chronic Pancreatitis or to Carcinoma of the Head of the Pancreas.*—Maximal jaundice (after gradual onset and steady increase without recession) with complete intestinal acholia, bilirubinuria and pruritus; usually entire absence of pain and fever; large, easily palpable gallbladder. Sometimes, a tumor is palpable in the epigastrium. Tendency to emaciation and cachexia greater in carcinoma than in pancreatitis. Glycosuria present in 25 per cent. of the cases. Operation indicated, and often too long delayed in the hope that only catarrhal jaundice exists.

7. *Hydrocholecystosis or Chronic Remittent Cholecystosis (With or Without Stones in the Gallbladder).*—Brief attacks of pain without fever, recurring for months or years in the right hypochondrium, synchronous with recurring distention of the gallbladder, but without signs of local or general infection (Berg). A Riedel's lobe may be palpable, and, if so, may be mistaken for a mobile kidney, a hydronephrosis or a neoplasm.

8. *Carcinoma of the Gallbladder.*—Nodular mass palpable in gallbladder region, appearing in a patient who has earlier shown signs of cholecystitis or of gallstones; jaundice in 75 per cent. of the cases; ascites in 25 per cent; metastases in the liver may occur early; cachexia common. Operation, unless performed very early, rarely saves the patient. Death usually occurs within a few months.

1035 North Calvert Street.

TRACHOMA

A PUBLIC HEALTH PROBLEM OF THE STATES *

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Trachoma is an inflammation of the conjunctiva which originates in infection from a trachomatous to a nontrachomatous eye, through the medium of the secretion, lasting, without interference, months and years, causing serious and permanent impairment of vision, and resulting too often in total blindness from its cicatricial and mutilating effects.

The condition is more or less a hypertrophy of the conjunctiva, plus the trachoma follicles or granules, and is described by some authors as "papillary trachoma" and "follicular trachoma," according to whether the hypertrophy or the follicles or granules predominate. When the follicles can be seen in the much hypertrophied and inflamed tissue, it is at times referred to as "mixed trachoma," while the terminal stage is classed as "cicatricial trachoma." The disease occurs under varying clinical aspects, which has caused some observers to describe several varieties of trachoma. It would seem, however, that these are merely various stages of trachoma, rather than varieties.

It is realized that some cases respond more readily to treatment than do others, as is the case in many diseases; then again, the subjective symptoms in one patient may be comparatively mild and, even though the trachoma has existed for years, there will be but little discomfort or corneal damage. In fact, a case is occasionally seen in which the disease has been of long standing and reached the cured or cicatricial stage with practically no damage to the cornea. This is probably the reason why one observer [1] describes trachoma clinically in two forms: fulminating and slow trachoma.

DIAGNOSIS

Like smallpox and some other communicable diseases of which the etiology is unknown, the diagnosis is a matter of personal opinion, based on the character and amount of experience which the observer may have enjoyed with respect to the disease.

According to my observation, decidedly more errors are made in diagnosing cases as trachoma which should be classed as benign conjunctivitis. This was evident during the World War, when many men were rejected for service as having trachoma who probably suffered from no communicable eye disease whatever. One instance in particular was noted in a Western state where about sixty drafted men were examined in one day by the medical board, and 25 per cent. of them were rejected as having trachoma. I examined these men at the request of the chairman of the board and found them quite free from any affliction of the eyelids which would bar them from service. The same thing is continually seen when a routine examination of schoolchildren has been made.

Reports are frequently received from communities that medical examination of the schools showed many hundreds of cases of trachoma. At times the schools had been closed because of a supposed epidemic of trachoma. Subsequent investigations showed that the great majority of the cases were only benign conditions.

On the other hand, there are apparently a few specialists who are loath to admit that trachoma exists unless the conjunctiva shows cicatricial tissue and possibly other sequels of the disease. This failure to recognize early the nature of the disease, and apply the appropriate remedy which is demanded by the truly serious condition, not only dooms the individual patient to unnecessarily prolonged suffering and the mutilating effects of trachoma with the resultant impairment of vision and frequently total blindness, but constantly subjects his family and associates to a dangerous communicable disease.

In order to be able to determine intelligently whether trachoma is or is not present in any given case, it is essential that the entire conjunctival surface be inspected, particularly in the upper lid and culdesac. It is therefore imperative that the examiner be able to evert the lids correctly and expose these parts. This may at first thought seem to be a small matter; but to evert properly the upper lid, so as to expose and examine all portions of the culdesac, is rather an art that requires no little practice. It is possible to evert the upper lids quickly and effectively without discomfort to the patient. A knowledge of the appearance of the normal conjunctiva, as well as diseased conditions, of course, is essential in diagnosing trachoma.

The small glove buttoner with a wire loop makes an excellent instrument for everting the lids. To examine the upper lid, the patient is requested to look downward with the head well back. The lashes of the upper lid are held between the thumb and forefinger of the left hand, and the lid is drawn gently downward and outward, while the wire loop of the glove buttoner is held with the right hand and placed well up on the skin of the eyelid, and the lid everted over the instrument. By properly manipulating the point of the instrument, one may inspect all portions of the culdesac under varying degrees of pressure.

Trachoma usually commences with an irritation and inflammatory symptoms. Soon there are photophobia, pain, and more or less watery secretion. In the beginning it is often difficult or impossible to differentiate it from a simple catarrhal conjunctivitis. The latter, however, with the use of simple remedies, will clear up rather easily. On the other hand, there will be no appreciable effect on the trachoma, and the thickening of the conjunctiva will gradually take place with obliteration of the continuity of the vessels and the appearance of the granulations. The patient complains of sensitiveness to light, lacrimation, more or less pain, disturbance of vision and sticking together of the lids in the early morning. The palpebral fissure is narrower than normal, and there is a frowning expression

* Read before the Section on Preventive Medicine and Public Health at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Foster: Clinical Course and Diagnosis of Trahhoma.

or wrinkling of the skin of the forehead, due to photophobia. The upper lid often droops, and the distance between the cilia and fold of the skin of the upper lid is more marked. Secretion is noted, especially at the internal canthus, and a granular appearance is observed at the inner angle of the eye, the color of which is darker than normal. These conditions cause a suspicion of trachoma even when viewed at a distance. When the lid is everted, the conjunctiva over the tarsus and in the culdesac is red and thickened, and the surface is uneven and readily bleeds. The blood vessels of the conjunctiva are more or less obscured, and it is not possible to trace them uninterruptedly from the ciliary border to the culdesac, which would be possible in the absence of hypertrophy. The appearance of the blood vessels is considered very important, as this indicates the degree of conjunctival hypertrophy, a very essential feature in trachoma. The conjunctiva may appear velvety, or even raspberry-like in appearance, or it may present the gray, translucent, roundish granules in accordance with whether the papillary or granular form predominates. The former is always more pronounced on the upper lid, while the latter is principally in the retrotarsal folds.

The course of trachoma, when unmolested, is a gradual increase of hypertrophy of the conjunctiva, which varies in different cases. Finally, the hypertrophy gradually disappears and is replaced by a slowly forming cicatricial state. This is usually, however, when not given proper treatment, a question of years—and the intervening years mean untold misery to the unfortunate victim while the sequels develop and his vision grows less and less, and too often he is blinded and compelled to pass the remainder of his days in total darkness.

With the cicatricial stage, the trachoma is cured in that the specific morbid process has come to an end; but the entropion, trichiasis, pannus and xerophthalmus too often remain as sequels to harass the blind and to add to their misery.

Even total blindness is not the worst result to be feared in trachoma. When the disease attacks little children, they are, untreated, too often the victims of a life of untold misery. With the pannus, corneal ulcer and photophobia, they pass their dismal days, endeavoring to shield their eyes from light. So constant and excruciating is the pain in many cases that this one thought and aim occupies them to the exclusion of all else in life. The child therefore finally reaches adult life, wrecked mentally and physically, veritably a human derelict—so dwarfed in mind and warped in body that were it humanly possible at this late day to give him good sight, he would find it impossible to take his rightful place in society.

In many cases the disease remains dormant for indefinite periods, and is found only in routine examinations of schools, etc. Either these cases develop insidiously, or the original acute onset has been forgotten. They are often dormant until some irritant causes an exacerbation.

When schools, institutions, etc., are examined in a routine manner, cases of trachoma are found among people who are apparently surprised that any abnormal condition exists. On close questioning, however, some of them will remember having had an inflammation of their eyes at some previous period. Others will insist that they have never experienced any trouble with their eyes. According to Fuchs, these cases belong to the granular form of trachoma; and examination shows, in the retrotarsal folds, a considerable development of trachoma granules. Fuchs says, in connection with these dormant cases: "This was eminently the case in New York when systematic inspection of the public schools for eye disease was first taken up; and, because so many of these latent cases were unearthed, the idea got abroad that there was an alarming increase—a veritable epidemic—of trachoma, in the city. The truth is that there were no more cases than before, only more were discovered." The importance of a rigid, routine and thorough examination of schools is therefore emphasized.

The patients often deny any subjective symptoms until the pannus has developed sufficiently to interfere with the sight. At a recent field clinic, a girl, aged about 19, insisted that she did not know there was any trouble with her eyes until told so in a routine school examination, although there was a very marked hypertrophy of the conjunctiva, granulations, and a distinct pannus in the right eye.

When we consider that the diagnostic signs of a comparatively recent case of trachoma are the trachoma follicles and hypertrophy of the conjunctiva (neither of which occurs in those diseases with which it is confounded), there should be, theoretically at least, no trouble about making a diagnosis.

DIFFERENTIAL DIAGNOSIS

Practically, however, we realize that there are cases in which follicular conjunctivitis and trachoma are at times difficult or impossible to differentate. When it is not possible to do so, or when there is division of opinion of observers of equal experience and opportunity for observing and treating trachoma under the various conditions, then it must be admitted that the case is at least suspicious; and suspicious cases are to be treated in public health work as positive until the doubt has been removed.

On this point Fuchs says:

> If a physician in any case is doubtful whether he is dealing with trachoma or follicular catarrh—a distinction which often cannot be made in the first examination, especially in cases of acute onset—he must denote the case as suspected trachoma, and must take the steps necessary to avoid the spread of the disease, and must begin the treatment.

The potentialities of trachoma are far too great to take chances on infecting the healthy while the discussion continues as to whether the case is one of trachoma or follicular conjunctivitis. When an abnormal and curable condition exists, it should be cured.

In the opinion of one of the leading ophthalmologists of this country, children with decided folliculosis, sometimes called "school folliculosis," should be kept from school until the condition is cured; this is best treated surgically. Withholding proper surgical treatment and temporizing with the various astringent lotions in order to observe the course of the disease is unjustified and unfair alike to the patient and to his associates.

Follicular conjunctivitis is characterized by follicles, superficially placed, that appear to be on the conjunctiva rather than in the conjunctiva. There is no hypertrophy of the conjunctiva, and the course of the blood vessels can be traced from the ciliary border to the culdesac. De Schweinitz says:

> The follicles are benign; they are smaller, by more than one half, than the follicles of trachoma; they are in large measure confined to the fornices; they are never seen on the plica or the bulba conjunctiva. . . . If the follicles are

irregularly present and not disposed in typical parallel rows, and especially if they are deeply set, and beginning induration of the tarsus is evident, the presence of trachoma becomes more than a suspicion. Moreover, even in its very earliest steps, as has been recently pointed out by Stieven and Van Kirk, in their "Search for Trachoma Among Mill Workers," loupe investigation of the upper portion of the cornea will not infrequently detect a very delicate ingrowth of vessels, the first beginning of a pannus, not discoverable by the naked eye examination. This sign is an important one, and is not present if the follicles are benign.

Cases of vernal catarrh usually can be diagnosed by the peculiar pavement-like appearance and the subjective symptoms, more pronounced during the first warm days of spring. When the upper lid is everted, there is seen across the surface an appearance as though a thin layer of milk had been spread. Parinaud's conjunctivitis is an acute disease accompanied by fever and glandular enlargement, and usually occurs in one eye. Tubercular conditions of the eyelid simulating trachoma are comparatively rare.

PREVENTION AND CONTROL

Trachoma is a reportable disease in many states. Surveys in numbers of states have been made by the Public Health Service, and trachoma has been found to be prevalent in many. A number of states have taken up the trachoma problem and appropriated money to combat the disease. The health officer of a state where trachoma is prevalent says:

> Trachoma presents a problem more largely economic than any other in the whole field of preventive medicine. No one dies with this disease. Many of those who have it are eventually made blind. The economic usefulness of every patient is greatly decreased. It would be conservative to say that the average earning capacity of persons having trachoma is less than one fourth of the average earning capacity of well individuals. It is slowly but surely contagious and spreads through families, schools, institutions and communities when an initial case is introduced.

Some years ago we began to realize that trachoma was not purely an exotic disease, and that it was a public health problem to be dealt with in the states. In cooperation with the several states, therefore, free trachoma hospitals have been established in Kentucky, Virginia, West Virginia, Tennessee and North Dakota. An eye specialist is in charge, and a corps of trained nurses are on duty in each of these hospitals. In addition to these hospitals, field clinics have been conducted in these and a number of other states. The results have been exceedingly satisfactory.

Adults who for years have been burdens to themselves and their friends, and often charges on the county, have been cured and enabled to earn a livelihood for themselves and family. Children who have been compelled to remain out of school on account of the constant pain and failing vision have been permitted to resume their studies without further interruption. Patients have come many hundreds of miles seeking relief, and the capacity of the small government hospitals has been taxed to accommodate these sufferers.

About 9,000 cases of trachoma have been treated at these hospitals, the ages of the patients varying from infancy to old age. About 50 per cent. of all patients had impaired vision from trachoma; 1 per cent. were blinded in both eyes; 3 per cent. blinded in one eye, or 4 per cent. of the patients had suffered the loss of either one or both eyes as the result of trachoma; 10 per cent. showed active ulcers of the cornea; 35 per cent. had pannus; 10 per cent. had entropion; 7 per cent. trichiasis, and 50 per cent. had photophobia, and about 25 per cent. had corneal opacity.

It is impossible to know anything like the exact number of cures that have been effected, because many of the patients live long distances from the hospitals and in isolated neighborhoods, and, once relieved of their subjective symptoms, they do not return for final inspection, so that the hospital cards fail to show what result has been obtained. A case is recorded "cured" only when the ophthalmologist in charge has examined the lids and found them entirely free from trachoma.

The number of hospital cases does not include the field clinics that are being conducted in various states. Eighteen field clinics have been held during the last seven months; 825 operations were performed, 559 under general, and 266 under local anesthesia.

CASES OF WHICH A COMPLETE RECORD HAS BEEN POSSIBLE *

	Duration								Sequels								Time to Cure					
Ages	0-1 Month	1-6 Months	6-12 Months	1-2 Years	2-5 Years	5-10 Years	10 Years Up	Total Cases	Pannus	Corneal opacity	Ulcer	Entropion	Trichiasis	Impaired Vision	Photophobia	Blind One Eye	Blind Both Eyes	1-4 Weeks	1-2 Months	2-5 Months	5-12 Months	1-2 Years	Total Cures
0- 5	1	7	8	6	4	...	...	26	2	2	..	...	...	9	2	1	..	5	11	9	1	0	26
5-10	6	33	36	24	24	11	...	134	25	3	5	6	...	70	29	1	1	14	44	55	13	8	134
10-20	2	37	47	71	80	58	54	349	138	86	43	46	24	242	141	31	1	36	89	147	54	23	349
20-30	6	12	1	16	23	23	21	102	57	37	17	27	15	100	60	10	4	11	35	21	19	16	102
30-50	7	8	3	7	21	16	30	92	48	33	20	27	17	93	56	10	2	7	21	36	17	11	92
50 up	2	6	1	8	17	16	21	71	39	30	13	23	10	71	41	5	7	11	21	20	11	8	71
All ages	24	103	96	132	169	124	126	774	309	191	98	129	66	585	329	58	15	84	221	288	115	66	774

* Prepared by Dr. R. W. Raynor, medical officer in charge of the Pikeville, Ky., Trachoma Hospital.

TREATMENT

Treatment of trachoma is surgical. Nothing particularly new is claimed in the treatment of trachoma, but it is believed that the grattage method has been so systematized that each case is carefully studied, so that the operation best suited to the individual case may be done, or a "selective" grattage performed.

The amount of traumatism necessary in one case may be inexcusable in another. The object is to remove the abnormal tissue, but to stop as soon as this has been accomplished. In the average case this can be judged principally by the reappearance of the blood vessels of the conjunctiva. Some experience, however, is required to know just when to stop.

The operation as performed in the Public Health Service trachoma prevention work is as follows: The eyelid is everted and held in position by special forceps that at

once hold the lid firmly and afford a supporting surface for the eyelid which is to be operated on. With two dull scalpels, one in each hand, the operator gradually raises the conjunctiva until the entire culdesac is exposed, an assistant holding the forceps in position. In marked cases, superficial scarification of the surface is done from below upward, and then brushed with a mercuric chlorid solution, 1:2,000. This is followed by using small sponges of fine mesh gauze, wrung out of the 1:2,000 mercuric chlorid solution. This is applied with the finger in smoothing the conjunctiva, and is continued until the vessels are seen clearly when pressure is relaxed on the forceps. Care should be exercised to reach all parts, for it is essential that the hypertrophy and granules be thoroughly removed. This is facilitated by manipulating the forceps and pulling forward the conjunctiva and holding it while the culdesac is smoothed out. After the forceps are removed there remains to be gone over the small place at the edge of the eyelid where the teeth have held. This is accomplished by the use of Demarres forceps. After the operation, the eyelids are everted and thoroughly cleansed of all blood clots by washing with boric acid solution, after which 2 drops of a 20 per cent. solution of argyrol is put in each eye. When this operation has been properly done, there is usually but little reaction, and it is seldom necessary to make cold applications. The eyes should not be bandaged. Some of the milder cases of the disease will require only the application of the gauze. The after-treatment consists in washing out the eyes every three hours with boric acid solution, followed by 20 per cent. solution of argyrol. During the twenty-four to forty-eight hours immediately following the operation, the eyes should be examined carefully by the surgeon or a competent assistant for any adhesions and, if found, these should be broken up. At the expiration of about one week, when the slough has come away, if there are rough surfaces left, they should be brushed lightly with a 2 per cent. solution of silver nitrate and repeated if necessary.

In the old long standing or deeply seated cases, one operation may not suffice to effect a cure. In this event, the operation should be repeated as soon as it is determined that it is necessary.

With the smoothing off of the lids the pannus will gradually disappear and the corneal ulcers heal. Deep ulcers should, of course, receive appropriate treatment, but should not be bandaged.

In those cases in which the palpebral fissure is too limited, a canthoplasty should be done. In the old cicatrical cases in which entropion and triciniasis are present, appropriate surgical methods are to be resorted to. When these conditions are very marked and the eyelashes are directly on the eyeball, the patients suffer greatly at times. These patients are marvelously benefited by an effective entropion operation.

When the infection appears to be in the tarsal plate and recurrences of the trouble take place, the plate should be removed. This usually gives excellent results.

Better Hospital Facilities in England.—It seems certain that the policy of the ministry of health contemplates a critical review of the hospital accommodation all over the country and, if necessary, its reorganization, so that there shall be no overlapping or waste, and that beds may be available so far as possible for all varieties of disease.—*Lancet*, Dec. 13, 1919.

THE DIFFERENTIAL DIAGNOSIS OF CONJUNCTIVAL FOLLICULOSIS AND TRACHOMA*

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The old controversy over the differential diagnosis of conjunctival folliculosis and trachoma must once more be haled before the assembled intellect of a great profession. The excuse for its precipitation at this time is a good one, for the issue has erupted in a territory where the character of the population is such as to lend material aid to its proper settlement, there being practically no foreign element to becloud the condition. It goes without saying that a correct solution of the problem is of transcendent importance to the welfare of hundreds of thousands of children, and therefore of the entire people of the affected area.

The Mississippi and Ohio valley states and the region south of Mason and Dixon's line appear to be the scene of a more or less active trachoma campaign. So far as one can determine from a survey of the literature and professional activities of the last ten years or so, it would appear that the U. S. Public Health Service is very kindly furnishing the fuel for this campaign by discovering considerable numbers of trachomatous children in various schools in various localities throughout this area, where it is asked that a survey be made.

I must request that it be clearly understood that in this paper I am not discussing conditions in the mountains of Kentucky and East Tennessee, or in certain Indian reservations, or in certain small communities where foreigners predominate. We all know, of course, that real malignant trachoma is epidemic, even endemic in these places. Leaving these out of the discussion, I have reference, then, to all the rest of the great area just outlined, comprising all of the Southern and many of the Middle Western states, where the population for the most part is native-born American, and where society is in a state of enlightened civilization. I can speak with first-hand knowledge only of the situation in South Carolina, but I am reliably informed that similar conditions have recently existed or now exist in many other states and localities in this great area.

Briefly stated, the facts as to the discovery and management of alleged trachoma in South Carolina are as follows:

Two representatives of the U. S. Public Health Service, who were designated as trachoma experts, were requested by the state board of health to make a survey of the schools of Newberry. They reported sixty-six cases of positive trachoma out of approximately 1,000 children examined, and these were distributed among fifty-five different families. One adult, about 30 years of age, was alleged by the same investigators to have trachoma and was operated on by them. So far as can be determined, there are not now and never have been any other adult cases of trachoma even suspected in Newberry. I saw forty of these alleged trachomatous children and the one adult, and in my opinion none of them had trachoma. Some of these children, and others under precisely similar conditions in other parts of the state, have been seen by

* Read before the Section on Preventive Medicine and Public Health at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

various ophthalmologists in South Carolina, in Atlanta and in Augusta. So far as I am informed, all but three of these ophthalmologists—one in Atlanta and two in Columbia—are of the opinion that these are not cases of trachoma; and these three ophthalmologists have all, I am told, in recent years been diagnosing similar cases and operating on these patients for trachoma. Other men and I have shown that similar conditions exist in various other parts of the state, and indeed will be found among children everywhere in slightly varying proportion.

Unfortunately, boards of health are as a rule confessedly unfamiliar with problems of this nature, and the South Carolina board was no exception. It accepted the recommendations of the Public Health Service representatives as ex cathedra, and excluded the condemned children from the schools, refusing to readmit them until they had submitted to operation, after which they were permitted to return to their classes within a few days—a course which might well be characterized as the acme of the *reductio ad absurdum* if the cases were really instances of malignant trachoma.

The serious aspect of the affair is this: If, as may be readily anticipated, this policy is to be continued throughout the state, about 20,000 schoolchildren in South Carolina will be stigmatized as having a disease, notoriously of uncleanliness, and will be practically compelled to submit to an operation that alone could not possibly cure them if they have malignant trachoma, and which if they have not trachoma is obviously useless and certainly not without danger to the integrity of their eyes. Truly this is a lamentably apt illustration of what the late Nicholas Senn characterized as "the furor operativus."

As an instance of the hypnotizing effect which this growing trachoma fallacy has on the minds of some of our public health officials, I may be permitted to relate an occurrence in one of our Southern states. The director of public health of the state wrote me that about two years before a number of cases of trachoma were "discovered" in a certain locality in his state by representatives of the U. S. Public Health Service. Fifty of these patients, he said, were at once operated on and immediately got well! However, a number refused operation, and every one of these subsequently went blind, according to my informant. The cure of the fifty was not only a professional achievement—it was a modern miracle! But how shall we characterize the subsequent blindness of all the unbelievers? It must, indeed, have been a fulminating type of the disease—ordinary trachoma is not so precipitate. When I asked for particulars concerning these blind children, I found that fortuitous circumstances had destroyed all trace of them. One of the condemned children, who had declined operation and had been excluded from school, later happened to come under my care. She was far from blind, having a simple folliculosis, and she fully recovered, with perfectly normal conjunctiva, under the simplest of treatment. Yet this health official insists that such overwhelming evidence convinces him that they were dealing with real trachoma!

Nothing has been heard of this epidemic since. It vanished, by the hand of God and enthusiastic surgeons, determined and exterminated at one fell swoop! This is only one of several somewhat similar instances that have occurred in various places in connection with this trachoma propaganda.

Believe me when I say that I gladly and in full meed accord all praise and gratitude to the U. S. Public Health Service for the several great achievements which must forever redound to its credit and good fame. But because a man saves my house from conflagration once, or a hundred times, that does not give him the right, no matter how exalted his motive, to enter my home and assault my people.

It is in an effort to save the children of my own people and others from what I believe to be an utterly unjustifiable assault that I take up the gauntlet thrown down by the U. S. Public Health Service in the very heart of my native state.

I regret that I may not here deal exhaustively with the subject, but of this neither time nor your patience will permit. Hence, what follows must be as brief and as practical as it is possible to make it.

DIFFERENCES BETWEEN FOLLICULOSIS AND TRACHOMA

Strictly speaking, conjunctival folliculosis is not a disease entity. It is a symptom, pure and simple—an expression of various causative factors.

Trachoma, on the other hand, is a syndrome, complete in itself, and due to a single specific cause, in the belief of the world's best authorities, and is, therefore, a disease entity.

For the purpose of this discussion, however, it is convenient to regard folliculosis as a manifestation of a syndrome, and a manifestation so important in this connection as to warrant our tentative consideration of it as a unit of morbidity. The two conditions will be discussed here in brief consecutive paragraphs so as to contrast them as clearly as possible in the mind's eye.

Definition.—Folliculosis is a subacute or chronic affection of the conjunctiva, with little or no inflammatory reaction; occurring in children and young adults of lymphatic temperament, without regard to present social or physical conditions; caused by any one or more of a variety of irritant factors; characterized by a varying degree of adenoid hypertrophy of the subepithelial lymphoid elements of the conjunctiva, of an essentially benign nature; manifesting but slight subjective symptoms or none at all, and invariably tending, after a longer or shorter period, to spontaneous and complete recovery.

Trachoma is a chronic inflammatory disease, with acute exacerbations, primarily of the conjunctiva, of specifically infectious origin, of acute or insidious onset, occurring in epidemic form only in surroundings of personal and community uncleanliness, and characterized in its course by three stages of conjunctival changes, namely: first, the so-called granular or follicular stage; second, the papillary, or hyperplastic stage, and third, the cicatricial or connective tissue stage, to which must be added certain frequent corneal changes marked by ulceration, opacification and pannus.

Incidence.—Wherever that greatest of all industries and endeavors, the propagation of the species, is found among mankind, there will be found folliculosis among the youthful products of the great mill of humanity. In varying degrees, from the faintest and mildest to the most pronounced and even startling phases of development, it will be found in at least 75 per cent. of all children, mostly between the ages of 6 and 18 years. It is not confined to schoolchildren. I have seen it in children from the farms who had never seen the inside of a school. It is seen in the scions of paladin and pinchbeck, of plutocrat and pauper—in a word, in

children of all sorts and conditions, though perhaps in varying proportion. In marked degree—the condition that is so often and so unfortunately mistaken for trachoma—it occurs in from 2 to 10 per cent. of all children. When large numbers of children are examined, as in the public schools, it is invariably found most frequently among those from 6 to 10 or 12 years of age, gradually diminishing in incidence as the older children are inspected, until when the age of 17 or 18 years is reached, little or no folliculosis will be encountered. It is rarely seen in adults, except in the mildest residual form. The history of the incidence of folliculosis is therefore characteristic, and when any considerable numbers of children are suspected of trachoma, the demonstration of such a history of incidence should be a powerful, even an unanswerable argument in the negation of a positive trachoma diagnosis.

Trachoma, on the other hand, is endemic and epidemic only in certain areas. In the United States, outside some communities of foreigners, it can be shown to exist endemically only in the mountains of Kentucky and East Tennessee (where Stucky [1] found and heralded it twelve or fifteen years ago—though Norris and Oliver [2] refer to its presence there thirty years ago—and there it has stayed), and among certain Indian reservations. In these localities hygiene and sanitation, both of person and community, are notoriously lacking. I have never heard of an epidemic of real trachoma in any other community of native-born Americans, where decent habits and surroundings prevail. Furthermore, trachoma is preferentially a disease of adult life, according to Fuchs [3] and others, though it is by no means a respecter of any age. When it occurs epidemically, however, it invariably attacks persons of all ages, and is *never* confined either to children or to adults. The history of incidence alone, therefore, is sufficient to differentiate it from folliculosis.

Etiology.—In folliculosis, first and foremost as an essential predisposing factor, especially in the well marked cases, is the existence in the child of the lymphatic temperament, as evidenced by the presence of hypertrophied tonsils and adenoids and other lymphatic tissues. Given this, and the addition of any irritant factor in the eyes, whether it be physical (foreign bodies, wind, smoke, etc.) chemical (acids, alkalis, various drugs), or bacteria (any one of a score or more of varieties of micro-organisms), or, which I believe to be an almost constant factor, the eyestrain of refractive errors, and folliculosis will appear. The condition is therefore merely the diathetic expression of a symptom which has no specific causation. From the foregoing, it is evident that folliculosis may and does at times occur in suitable types of individuals as a result of irritation from trachomatous infection, and in this coincidence lie the crux and casus belli of our polemic diagnostics.

The close relationship between folliculosis and the lymphatic diathesis was first emphasized, I believe, by Alger [4] in 1910 ("conjunctival adenoids"), and by Oertel [5] in 1912 ("eye adenoids"). In more than 300 cases of marked type that I have examined in the last few months every single patient—100 per cent.—had, or had had, hypertrophied tonsils and adenoids. Oertel has made the same observation in several hundred cases. Nardin [6] testifies to the same occurrences. This could hardly be a coincidence. No such association of conditions can be shown in true trachoma.

There is one, and only one, exciting cause of trachoma, and that is a specific infective agent. The world of ophthalmology is practically a unit on this point. Authorities do not agree that the particular micro-organism has been discovered and isolated, though many, among whom Lindner,[7] Weeks,[8] and Edmondson [9] are prophets, are inclined to accept the trachoma inclusion bodies of Halberstädter and von Prowazek as the specific agent. The admittedly extreme difficulty in the technic for their demonstration has no doubt militated against their general acceptance.

It appears to be a universally accepted view, as is emphasized by Wilder,[10] Ellis [11] and many others, that the essential predisposing cause of trachoma in epidemic form is personal uncleanliness and lack of hygiene and sanitary surroundings. It is therefore a disease of filth and sloth and its epidemic presence is a reproach to the community in which it exists.

PATHOLOGY

The pathology of folliculosis, as summed up by Collins and Mayou,[12] is simply and only in the hypertrophy of the subepithelial lymphoid elements of the conjunctiva. It is a true adenoid hypertrophy and is histologically indistinguishable from the adenoid hypertrophy of the nasopharnyx. In the most pronounced cases, this development, as mentioned by Wootton [13] in 1914, is invariably found not only throughout the palpebral conjunctiva but also in varying degree in the upper nasal quadrant of the bulbar conjunctiva, sometimes extending half way from the fornix to the corneal limbus, and it is also often to be found on the semilunar fould. This bulbar development has been described by some observers as being characteristic of trachoma. It is not.

The pathology of trachoma is much more extensive. In the follicular stage the trachomatous conjunctiva is histologically identical with that of simple folliculosis. In the words of Fuchs: "The papillary growths which (in trachoma) impart to the conjunctiva its velvety or raspberry-like appearance are caused by an increase in size of the surface of the hypertrophic conjunctiva. The latter is thrown into folds, between which correspondingly deep clefts are formed; then on cross section the folds appear under the form of papillae." Later there is a gradual increase of the connective tissue elements of the papillae, which crowd out and destroy by slow advancing process the natural conjunctiva of the lids. Thus little by little, and more and more after the stimulus of each acute exacerbation of the disease, the connective tissue increases at the expense of the palpebral conjunctiva, until finally the entire inner surface of the lid is covered with scar tissue, and the conjunctiva proper has undergone complete destruction and disappearance. The pannus of

1. Stucky, J. A.: Mod. Hosp. **5**: 51, 1915.
2. Norris and Oliver: System of Diseases of the Eye, Philadelphia, J. B. Lippincott Company.
3. Fuchs: Text-Book of Ophthalmology, Ed. 5, Philadelphia, J. B. Lippincott Company, 1917.
4. Alger, E. M.: Post Graduate **25**: 49, 1910.
5. Oertel, T. E.: Follicular Conjunctivi is, Its Relation to Adenoids, J. M. A. Georgia, 1912.
6. Personal communication to the author.
7. Lindner, K.: Arch. Ophth. **41**: 333, 1912.
8. Weeks, J. E.: Diseases of the Eye, Philadelphia, Lea & Febiger, 1910.
9. Edmondson, E. E.: Ophthalmology **12**: 41, 1915-1916.
10. Wilder, W. H.: Ophth. Rec. **10**, November, 1901.
11. Ellis, H. B.: South. Calif. Pract. **21**: 3, 1906.
12. Collins and Mayou in Pyle's System of Ophthalmic Practice, Pathology and Bacteriology.
13. Wootton, H. W.: New York M. J. **99**: 580, 1914.

trachoma is, according to Fuchs, a soft, new-formed tissue, rich in cells, and abounding in blood vessels, and greatly resembling the infiltrated trachomatous conjunctiva. It insinuates itself between the corneal epithelium and Bowman's membrane, sometimes destroying the latter. In mild cases, it undergoes resorption under appropriate treatment, leaving the cornea with little or no permanent damage.

Semeiology.—Folliculosis is often absolutely without subjective symptoms. When there is a marked refractive error, relief is sought for the accompanying asthenopia, and the follicular condition is discovered in the course of routine examination. Sometimes slight photophobia, itching or gritty sensations leading to rubbing of the eyes, and a slight purulent discharge are present; and these symptoms are due to the presence of an infection which may itself have been the exciting cause of the folliculosis. In the vast majority of cases, the condition is found only on routine examination of the eyes of schoolchildren, and not because of any complaint on the part of the individual affected.

Objectively, on eversion of the lids, the typical follicular development is at once recognizable. Masses of soft, semitranslucent nodules are seen usually in somewhat irregular rows, hemispherical or ovoid in shape, varying in size from 0.5 to 3 mm. in diameter. In color, the whole surface may range in different cases from apparent anemia to a deep, dull red. The conjunctival vascular distribution can always be traced with the use of the loupe, in and about these formations, and between the follicles at intervals can be seen tiny patches of normal conjunctiva. The follicles on the upper tarsus are always less numerous and smaller than elsewhere. In the marked cases, the retrotarsal fold of the upper lid is heavily involved and the lymphoid hypertrophy may be seen extending well into the bulbar conjunctiva in the upper nasal quadrant. The semilunar fold often participates in the phenomenon. There is never a sign of the deep papillary hyperplasia of the mucosa proper as is seen in diphtheritic, vernal and Parinaud's conjunctivitis, trachoma, the exposed mucosa of ectropion and late stages of gonorrheal ophthalmia. There is no evidence of cicatricial tissue, and the cornea is never involved in any way.

I have occasionally seen a marked folliculosis of the upper and lower lid of one eye, and no sign of the condition in the other eye. As Alger has remarked, foregin bodies (eyelashes, cinders, etc.) are often found lying in the conjunctival sac, surrounded with a mucoid film and evidently having been in situ for a considerable length of time. Occasionally there is a slight ptosis, probably due to the crowding and weight of the follicular formations in the retrotarsal fold.

These phenomena may and do often persist for months and even years without harm to the patient or others, and eventually, even without any treatment whatever, disappear, just as the nasopharyngeal adenoid atrophies, in early adult life, leaving the conjunctiva sound and normal, organically and functionally.

Trachoma may have an insidious onset according to some observers; but such men as Fuchs, Weeks and most other authorities distinctly agree that the usual initial symptoms are similar to those of other acute infections of the eye—lacrimation, inflammation, purulent discharge, pain, etc. In children of the lymphatic type it may well be, and, indeed, logically must be true that the specific trachoma irritant sets up a follicular hypertrophy just as any other irritant would do; but it is very certain that not all trachoma cases begin in this way. Acute exacerbations occur accompanied by watery and purulent secretions. In the course of a few weeks usually, though varying widely in point of time in different cases, but always eventually, the characteristic papillary hyperplasia of the mucosa proper appears, transforming the palpebral conjunctiva into a more or less indurated, thick, homogeneous, deep red, velvety looking structure, irregularly cut up by cracks and crevices formed by the inverted epithelium. All trace of the vascular supply is lost, swallowed up in the extensive hyperplasia. Then a little later, tiny spots and streaks of connective tissue deposits appear, and, as Axenfeld [14] has pointed out, these cicatricial areas are exclusively lesions of trachoma and therefore pathognomonic. In many cases, the cornea becomes infiltrated and cloudy (always, in the early stages of true trachoma according to MacCallan [15]); ulcers appear, and when they heal they leave opaque scars in the corneal tissue; a subepithelial film appears at the upper limbus, gradually extending downward across the cornea, thickly streaked with blood vessels—the pannus of trachoma; the upper lids droop heavily, and seem partly paralyzed; and in many cases, vision is almost or quite destroyed. In the course of this sequence of events, which may cover a period of years, intervals of amelioration occur, only to be followed by renewed exacerbations; more and more cicatricial tissue forms in the lids, until the whole hyperplastic conjunctiva is replaced by scar tissue.

The inflammation ceases; the damage done is permanent. This is the so-called cure of trachoma, whether brought about by medical or surgical interference, or in the course of natural events. Contractions may occur which deform the lids by inversion or eversion, and add to the misery of the victim.

Course.—The course of folliculosis is variable. Under appropriate treatment, it may disappear entirely in a few weeks, or even a few days, while other, perhaps most, cases, whether treated or untreated, persist for several years. But the rule of recovery with complete restoration of normal conjunctiva is invariable, whether properly treated or not treated at all. As Parsons [16] and others have said, it never develops into trachoma. Improper interference may, of course, produce complications.

True trachoma is never cured in a short time. This point is emphasized by Edward Jackson and Theobald, quoted by T. W. Moore; [17] by Allport, [18] W. T. Lister [19] and a host of other well-known observers; while Ray [20] quotes Axenfeld as questioning whether trachoma is ever cured in the true sense of the term—a feeling probably shared by most ophthalmologists. The infection invades every nook and corner of the papillary structure of the conjunctival mucosa, and can be eliminated only by the destruction of the mucosa and its replacement by cicatricial tissue. An eye once infected, while subject to periods of quiescence, is therefore never free from recurrent acute attacks until the process of cicatrization has become complete,

14. Axenfeld, Theodor: Bacteriology of the Eye, 1908.
15. MacCallan, J. F.: Trachoma and Its Complications in Egypt, New York, G. P. Putnam's Sons, 1913.
16. Parsons, J. H.: Diseases of the Eye, Philadelphia, P. Blakiston's Son & Co., 1907.
17. Moore, T. W.: West Virginia M. J. **5**: 49, 1910-1911.
18. Allport, Frank: Ophthalmology **12**: 494, 1915-1916.
19. Lister, W. T.: J. Roy. Army Med. Corps **32**: 487 (June) 1919.
20. Ray, J. M.: Louisville Month. J. M. & S. **21**: 362, 1914-1915.

whether through surgical interference or in the course of natural events. Most cases drag on for years, and ophthalmologists of the widest experience declare that under most favorable conditions and most vigorous treatment it is too much to expect a cure in any case of trachoma under one or two years. Even so, the cure is not a cure in the sense of a restoration of normal forms and functions, but is merely a subsidence of inflammation following the complete substitution of the infected palpebral conjunctiva with nonfunctioning connective tissue.

Communicability.—There are writers who declare that folliculosis is infectious. No unquestionable evidence has been introduced to prove the statement, which is apparently a "hand-me-down" opinion. The fact that it appears in large numbers of schoolchildren is the sole argument offered in support of the theory. It is an imponderable argument. One might as well say that hypertrophied tonsils and adenoids, or errors of refraction are infectious for the same reason. Greef and Mayweg, cited by Axenfeld, and others, have made repeated efforts to transfer the disease from one individual to another and have invariably failed. The multiple occurrence of well-marked cases in the same family is undoubtedly far less than the occurrence of familial multiple cases of pathologic tonsils and adenoids, or refractive errors of the vision.

A coincident or causative infection in a case of folliculosis is, of course, transferable, and this may or may not set up a folliculosis, according as the recipient is or is not himself of the lymphatic type. In the observation of hundreds of cases, I have particularly noted that familial occurrences are not the rule, and it is seldom, and evidently only incidental, that any two of those affected are deskmates, or otherwise in close personal contact.

Trachoma in its acute form is infectious and contagious—highly so. Addario and Greef, cited by Axenfeld, have proved its contagiousness by direct experiment on blind human eyes. This much is certain: A nontrachomatous eye can be made trachomatous only by inoculation with the discharge from an eye infected with trachoma.

In its chronic form it is only slightly contagious; and in the present-day environments of good sanitation and hygiene, and the exclusion of trachomatous immigration, the acute variety is seldom encountered, at least in this country. That is undoubtedly the consensus of best opinion in the world of ophthalmology. There is, therefore, as Brav [21] has tersely stated, no "trachoma problem" among us; certainly not to the extent that would warrant a wholesale surgical attack on the eyes of our children.

The city of New York has been through this agony, but several years ago saw the light; not, however, until, according to Alger, 50,000 schoolchildren had been operated on. Most of the cases they used to call trachoma are now recognized as folliculosis. These patients are not excluded from school, and are given only the simplest of treatment. The incidence of the cases now is in the same proportion as it has always been and always will be.

It is ill conceived and wholly useless to declare trachoma a quarantinable disease, unless "acute trachoma" is specified, since the unmodified term "trachoma" gives opportunity for too wide a margin of error and dispute in diagnosis. As a matter of fact, all boards of health would do wisely and well to avoid all specific reference to trachoma. The phrase "any eye disease accompanied by purulent discharge" should be used as a basis for quarantine, and this would cover all contagious eye diseases, for it can be accepted as a fact that no disease of the eye is contagious except such as is transferred through the medium of a discharge.

Coincident Phenomena.—The outstanding feature in the accompaniments of folliculosis is the constant presence, in the marked cases, of hypertrophied tonsils and adenoids, and the frequent coexistence of adenopathy in other tissues, as has been repeatedly pointed out by various observers in the last twenty-five or thirty years. This is not strange, for it must and will eventually be universally recognized that folliculosis is itself merely an ocular expression of adenopathy. Next is the almost, if not quite, constant presence of refractive errors. Parsons directed attention to this in 1907. Eyestrain has a direct bearing, as a low-grade irritant, on the development of "eye adenoid" hypertrophy. Not infrequently a superimposed infection of mild type is recognized by the presence of a slight discharge.

So far as I am aware, trachoma is not associated with any diathesis, dyscrasia, organic insufficiency or peculiarity, or systemic pathogenesis of any kind. It is strictly and wholly a localized infection. It is generally accepted that coincident infections are of frequent occurrence. But it is well to note here for emphasis that trachoma in epidemic form is inseparably related to personal and community uncleanliness—lack of bathing facilities; lack of clean clothes, utensils and individual toilet articles; absence of sewerage and proper drainage; inadequate ventilation—in a word, bad living conditions. Only in such a field could an epidemic of trachoma exist; none, I believe, has ever existed otherwise; and hence, the fear of such a possibility in our civilized society today can justly fade from the minds of thoughtful men.

Diagnosis.—In many cases of the very early stage of trachoma in individuals of the lymphatic type, it is impossible by any known clinical sign or laboratory test to distinguish between trachoma and folliculosis. In such individual instances, time alone can establish the diagnosis. This, however, as Allport has emphasized, is the one and only condition and phase in which there is the slightest excuse for the mistaking of the one disease for the other. And even here the mistake could be excusably made only in the consideration of individual cases. When large numbers of cases are encountered and the history of incidence, as heretofore described, is properly considered and logically administered, there is no justifiable reason why school folliculosis should ever be mistaken for a trachoma epidemic.

But the great point to be stressed is that every case of trachoma necessarily progresses to the stage of true papillary hyperplasia (as clearly distinguished from simple follicular hypertrophy), with vascular obscuration, some degree of induration and thickening of the entire lid structure, and the formation of cicatricial tissue; and unless, and until, this stage has been reached and demonstrated, the disease known as trachoma is not and cannot be diagnosed. And when it is reached, there can be no argument, for this sign is pathognomonic.

Treatment—In folliculosis, nature, unaided, will eventually bring about a cure even in the severest

21. Brav, A.: New York M. J. **93**: 407, 1911.

cases. She may be hurried and helped by simple measures, such as mild antiseptic and soothing lotions. Coincident infections are managed in the usual ways. Refractive errors should always be corrected and hypertrophied tonsils and adenoids should be removed. These are matters of general principles whose beneficial effects are sometimes startling. Such procedures as the various methods of grattage and expression should be avoided except in the severest manifestations of the disease, and then only with the understanding of the possible injurious effects which may follow the interference. Even so, recurrences are very frequent after an interval of a few months, so that little or nothing is gained by the procedure, while permanent damage has been done the conjunctiva. Fuchs, cited by Alger, says, "Cases in which follicles exist without causing any annoyance are best left without treatment."

It logically follows, then, that no surgery should be countenanced in suspected trachoma. Only when the disease has shown its characteristic signs should operative measures be considered. Even then, many competent ophthalmologists deny the efficacy of surgery in the early stages. Repeated operations must invariably be performed before all of the diseased conjunctiva is transformed into cicatricial tissue, though this will admittedly hasten this outcome. Operation must always be reinforced by prolonged and faithful treatment. Cleanliness, antiseptics and astringents for the pathologic condition of the conjunctiva, and heat and mydriatics for corneal involvements are indicated under the usual principles governing the care of eye inflammations. But whether surgical or medical attacks are instituted, or whether Nature is left to her own means and devices, the cure, so called, of trachoma is simply and evidently only in the substitution of scar tissue for conjunctiva. It is an absolute fact that this is the inevitable result in any eye once infected with trachoma. If this be a cure, make the most of it.

In certain old advanced cases, the surgical removal of the upper tarsal cartilage is of admitted benefit often attended with brilliant results, as Cary [22] and others have shown. But this is done only for the purpose of mechanical relief, and usually after the active infection has burned itself out.

Prognosis.—If it has not been improperly treated or surgically interfered with, the outcome of folliculosis is invariably complete recovery, sooner or later.

The last state of trachoma, no matter how treated, is an eye permanently damaged in structure and function. As Allport has said, "There is no royal road to cure."

CONCLUSIONS

The contrast has been drawn. Whether my argument, per se, is valid or invalid in this connection is a matter of no importance. But a proper solution of the question at issue is a matter of the very highest importance to the people of this country.

If a malignant and dangerous form of trachoma is virtually pandemic among the schoolchildren of our country, as some would appear to have us believe, a quick and authoritative recognition of the fact is, for obvious reasons, of the very quintessence of necessity.

If, on the other hand, we have, of ubiquitous incidence among our schoolchildren, not trachoma, but a simple and harmless affection that is being widely mistaken for trachoma, and by virtue of this mistake our children are being surgically attacked wholesale and not without danger to the integrity of the eyes, it is equally important, for equally obvious reasons, that this should be definitely known.

But how are we to decide the issue? Few, if any, of us who practice preventive medicine and are guardians of the public health in our respective states are trained ophthalmologists.

Perhaps every state board of health should have in its membership a competent ophthalmologist; but have they?

May I offer a suggestion? Why not have every state board adopt a rule that the solution of all questions of serious importance in connection with the eyes of schoolchildren shall be entrusted only to such men as hold the certificate of the American Board for Ophthalmic Examinations? Here is one of the real purposes for which this board exists—the protection of the people. It was created out of the combined wisdom and efforts of the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association, and the American Academy of Ophthalmology, for the purpose of establishing and maintaining a high standard for the practice of ophthalmology. At the present time, application for its certificate is voluntary, but the day is at hand when the holding of such certificate will be obligatory, by law and popular demand, on all who would practice this specialty. Whoever else may or may not be competent to practice this branch of medicine and surgery, it is at least certain that the holder of such a certificate from this time forward is backed by the guarantee of the nation's best thought as being properly qualified and equipped to practice ophthalmology.

22. Cary, E. H.: Histology and Pathology of the Superstructures of the Lid in Trachoma and Treatment, J. A. M. A. 71: 1647 (Nov. 16) 1918.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MC MULLEN AND JERVEY

DR. ARTHUR T. MCCORMACK, Louisville, Ky.: The campaign which has been conducted in Kentucky under the direction of Dr. McMullen is one of the greatest triumphs of medicine in the real solution of a tremendous practical problem. Discussion of the subject divides itself into two parts: the differential diagnosis of the disease and the relief of sufferers from a disease which has filled poor houses and asylums for the blind with its victims, a disease which has kept a considerable percentage of children from school or from making progress in school and which has pauperized whole precincts in certain counties. From very early times there have been nests of trachoma in certain definite geographic sections of Kentucky. These sections formerly were quite isolated; they had practically no schools, no railroads, and no roads. With the invasion of these districts by commercial enterprises and by people with means, the opening of schools, building of roads, etc., the trachoma problem was no longer a local one. The disease spread, invading many sections of the state. The new order of things is gradually overcoming these conditions. In many sections in Kentucky we are holding clinics. The legislature made an appropriation for a traveling clinic, making it possible to get at the disease in places too remote for government hospitals to reach. The work Dr. McMullen and his associates have inaugurated in Kentucky at first met with the opposition that is bound to arise, but today the profession is cooperating in every way. There is no step in medical progress, in typhoid fever, yellow fever or in malaria, or in any other line of work in which the medical profession of the United States can take more pride than in the campaign against trachoma.

DR. HENRY DICKSON BRUNS, New Orleans: There are great endemic trachoma centers in the United States, and nobody

can sufficiently praise the work that has been done in the hospitals and stations of the Public Health Service in these regions. Then, we must postulate this: Trachoma always leaves scars. Unless the disease endemic among the children has been of brief duration, or unless extraordinary precautions have been taken, examination of the adults of such a community must show the scars and lesions of trachoma, if that were the disease; and that is the point on which all testimony ought to be brought, and not on the almost impossible question of the differential diagnosis.

DR. THEODORE OERTEL, Augusta, Ga.: Some members of the profession have overlooked a few vital points in relation to folliculosis as it is generally understood. I am quite sure that those who claim that follicles on the globe and on the tarsus indicate that this is not simply folliculosis but trachoma, are in error. I have several times examined the school children of Augusta. In my private and clinical practice I have seen three cases that I called trachoma in twenty-two years. On the other hand, I have seen a great many children with folliculosis, and in a large proportion of them the follicles were on the conjunctiva. In many there were masses on the tarsus. My recent examination of school children, including those in the high schools, failed to disclose any scar tissue in any lids that I could feel might have been caused by trachoma. I saw no case of pannus or other corneal involvement which I could attribute to trachoma, which I believe proved that these children did not have trachoma in their younger years. I have been teaching for many years that in every case of marked simple folliculosis the same tissue is found in the throat as a reaction to some kind of irritant. This is a very valuable diagnostic symptom in the differentiation between these two maladies.

DR. JAMES A. HAYNE, Columbia, S. C.: Children were brought to Columbia by their parents for a disease of the eye which was diagnosed by the ophthalmologists of Columbia as trachoma, and ten or twelve were subjected to operation. They came from one section of the state. These cases were not reported by physicians, but by the mothers and fathers of the children because they could not pursue their studies in school. I sent two ophthalmologists to this district and they reported thirty or forty cases of trachoma. I then called on the United States Public Health Service for help. They sent a man who was skilled in those operations, and he held a clinic in one town to the satisfaction of all parties. Then he went to the next town and there was some difference of opinion as to the nature of the disease. Dr. Calhoun of Atlanta made a positive diagnosis. Dr. de Schweinitz of Philadelphia called one of these cases that he saw suspicious. Dr. Jervey of Greenville said it was folliculosis. I called a committee of three physicians of South Carolina to determine whether it was folliculosis or trachoma. Two of those physicians responded and served; one was detained for various reasons and did not serve. These two who served differed absolutely and positively on the subject. One said it was trachoma, and the other said it was folliculosis. Then I called on the Public Health Service to determine what it was. The Public Health Service did not come into South Carolina and stir up trouble, but came because the ophthalmologists of the state did not know the difference between trachoma and folliculosis. They made a diagnosis positively and distinctly, and were begged by the physicians of one town to hold a clinic, which they did. They operated on those children, and the children are now attending school. The disease seems to have stopped in that community.

DR. THEODORE OERTEL, Augusta, Ga.: I am quite sure that the three cases I saw were not trachoma.

DR. WALTER H. BROWN, Washington, D. C.: I wish these gentlemen would tell me how they are going to erect a barrier that will keep trachoma localized in Tennessee or in Kentucky, which according to Dr. Jervey's statement seem to be the only places where it is prevalent. We who have been trying to study the transmission of diseases have learned that transmissible diseases or germs do not know boundary lines between states or countries; that they do not even respect the great barriers of the waters of the Atlantic and the Pacific. Just before I came here word was received at the office that there was in the port of New York a ship loaded with 1,500 Polish troops. Typhus fever has moved very close to the United States. And so I fear that Kentucky has moved very close to South Carolina and many other parts of the country. I am not concerned particularly with the discussion of differential diagnosis, but I am concerned with the sowing of endemic centers—not "epidemic," but endemic centers—of trachoma all over the United States. New Orleans many years ago did not want it known that they had yellow fever. It was a terrible disgrace. It interfered with trade. But New Orleans does not think that now. Kentucky does not think now that it is a disgrace to have trachoma. She knows her problem, and she is going ahead to solve it. This thing shall be looked at squarely from the standpoint of transmission of disease.

DR. S. W. WELCH, Montgomery, Ala.: I have been told that we have trachoma in the low country where the sawmill men have been getting a labor turn-over from all parts of the United States, and sometimes from southern Europe. Beyond doubt we have trachoma in the southern part of Alabama. This discussion has been purely academic, and to a practical man engaged in a practical work of controlling disease it is uninteresting. A country doctor in Alabama not long ago diagnosed some cases seen in the public schools as trachoma. I asked the United States Public Health Service to send some one to look these cases over. He found about fifteen cases of trachoma, operated, and the children were relieved. There have been no further cases of folliculosis or trachoma in that institution.

DR. GUSTAVE GOLSETH, Jamestown, N. D.: A number of years ago, in a neighboring county a school nurse made a survey of the school children and found that a large percentage had pimples on their eyes. The health officer made a diagnosis of trachoma, and sent out orders that these children must be treated in order to enter the schools. There was no difference of opinion among the ophthalmologists; every one of them said that it was folliculosis or follicular conjunctivitis. The health officer called on the United States Public Health Service for help. After making the survey the Service man reported 132 positive cases and 350 suspected or suspicious cases. Some of us who believed in justice and in helping the children immediately asked this man, Major Oakley, to appear before the State Medical Association and read a paper on trachoma. He did so, and it was a very excellent paper. (I appreciate Dr. McMullen's paper very much, and I have nothing to say against his paper, but I have a very serious objection to his treatment for folliculosis.) After the paper had been read, a number of men discussed it, all condemning the diagnosis, stating that these were cases of folliculosis and follicular conjunctivitis. I agree that the condition should be treated, but to treat follicular conjunctivitis or folliculosis with the treatment used for trachoma is the most damnable thing we can do. We have one school for the blind in our state, and not one of the inmates is blind on account of trachoma. The county that was selected for this survey has fewer cases of trachoma than any other in the state. It is not my own county. If they had examined my own county, where we have quite a large number of Russian immigrants, I would expect to find quite a number of such cases, but this is the best county we have, and there was not one case of trachoma in the entire survey.

DR. J. G. SOUTH, Frankfort, Ky.: Dr. McMullen is wiping out a terrible disease, one that has done great damage to the great state of Kentucky. Whether it be folliculosis or trachoma matters little to us. We are getting practical results through his wonderful work. I believe it is admitted by all that we have trachoma in Kentucky. Dr. McMullen is relieving all of these patients, practically all on whom he has operated. Absolutely no harm is being done. We see only wonderful results.

DR. J. F. HOGAN, Baltimore: About three months ago a child was found in a school in Baltimore with a case of suspected trachoma. I directed a member of the health department, Dr. Herbert Laroque, an ophthalmologist, to see this patient and he verified the diagnosis. It was in a Polish child. Dr. Laroque conducted an investigation through this school, which was a very large one, where nearly all of the pupils were of Polish extraction, and found eight or ten cases which

he diagnosed as trachoma. He then searched every school in the Polish quarter of the city, and found, among eight or nine thousand school children, thirty cases of trachoma. The diagnoses in these cases were verified by our best ophthalmologists. The same ophthalmologist examined a school, as a control, in the northwestern section which is attended by American children—the children of parents who have been here two or three generations—and found no cases of trachoma.

DR. HIRAM WOODS, Baltimore: Somebody said that this discussion is simply academic. I do not think so. There is a class of cases which we see in everyday practice which is very, very common. This class fits into the description, given by Fuchs, of follicular conjunctivitis. The description of follicular conjunctivitis is this: children—usually children from American families, from our own country—present on the lower lid a number of tiny little elevations; a few may be on the upper lid; there is absolutely no irritation, vision is unaffected; no thickening of the lids; no scar tissue. A point I got from Drs. McMullen and Schereschewsky is most valuable in diagnosis. The capillaries of the conjunctiva are not hidden but can distinctly be traced up around the edge of the follicle. That is what we mean by follicular conjunctivitis. From that on up to trachoma, the condition Drs. Schereschewsky and McMullen have been finding in various states, there are certain borderland cases. Where this question fails to be academic is here: Physicians not connected with the Public Health Service watch those children and let them go to school. I do not think that we are making a mistake. Some men seem to think we are. Are these borderland cases really cases of trachoma? That is only a question that can be decided by results: Treatment and time. I operated on a child presenting the type of disease I have tried to describe, and I would not hesitate a moment to let that child go to school. But, on the other hand, there is undoubtedly a type presenting the symptoms I have outlined that goes on for months and months and the patients get well. They do not give the disease to others. If these children, the borderland cases, have real trachoma, they ought to be operated on, but if they are operated on and in two or three days are perfectly well, and do not show any scar formation afterward, how about the original diagnosis?

DR. JOHN MCMULLEN, Louisville: Apparently two points have been made: One would seem to be that the man who sees the most trachoma cases appears to be the least competent to diagnose the condition, and the other is that those of us who are operating for trachoma have been guilty of mistreating the patients. Several leading ophthalmologists of the United States have visited with us, observed what we do for these patients and agreed with us to the extent of following similar treatment in their practice. As to whether we are dealing with trachoma or some allied condition—I can see no objection to curing these abnormal conditions. No valid objection has been put forward as to why this should not be done. As to the South Carolina cases, I am exceedingly sorry that there was not more cooperation from all the local ophthalmologists. I had not the pleasure of knowing Dr. Jervey at that time and his opposition to this public health work was brought to my attention in some newspaper articles. In one of these Dr. Jervey was exceedingly condemnatory of the Service work.

DR. HIRAM WOODS, Baltimore: It has been stated that absence from school for only three or four days is needed for the operative cure; but trachoma does not get well that way; follicular conjunctivitis—a perfectly harmless disease—does. Operation for the latter is rarely necessary. To my mind, the large percentage of quick cures is very suggestive of a large number of errors in diagnosis of trachoma. I am entirely willing to admit that in suspicious cases it may be right to err on the safe side. I doubt if expression does harm, but there is nothing gained in not admitting to ourselves that we have a very practical therapeutic proof of frequently mistaken diagnosis: nor do we know at present how to avoid it save through painstaking observation of the lesions in the two classes.

DR. JOHN MCMULLEN, Louisville, Ky.: A survey of the schools of Cincinnati has just been completed by the state of Ohio and the city of Cincinnati. So far as I know, the ophthalmologists of Cincinnati agree with the findings in the 52,000 children examined. There were 139 cases of positive trachoma. A considerable number of the ophthalmologists of Cincinnati examined some of these cases in the city hospital, and the diagnosis of those cases recorded as trachoma was concurred in by all present. A recent survey in Texas of probably ten or fifteen thousand school children showed about the same percentage of trachoma in one section of that state. The word "assault" on the children was used by Dr. Jervey in referring to the operation for the eradication of trachoma and allied conditions without having seen the operation. Parents voluntarily brought their children to the clinic to be cured. The treatment was witnessed by the parents, local physicians, officials, etc., many of whom have since assured me of their heartfelt appreciation for the relief afforded the patients. Some very good men concurred in some of those diagnoses in Newberry, as Dr. Hayne has said. There appears to be no consensus of opinion in diagnosing trachoma, but this is true in many other diseases and conditions. Three cases of suspected trachoma in Baltimore were recently examined by Dr. Herbert Harlan, Dr. Woods and myself. These cases were exactly the type as seen in South Carolina. Dr. Woods, Dr. Harlan and I agreed that one of those was a positive case of trachoma, while the other two were very suspicious. In reply to Dr. Woods as to whether trachoma could be cured in two or three days: Operative procedure removes at once all abnormal tissue and very decidedly shortens treatment. Many patients require only the one operation, followed by the necessary after-treatment, and can return to school in a few weeks. This is true of the three cases seen recently with him in Baltimore, provided they are given proper treatment.

DR. J. WILKINSON JERVEY, Greenville, S. C.: I have never believed that the United States Public Health Service was composed of men who are autocratic or unreasonable. They must expect to be criticized for they are public servants. If I choose to disagree with their methods, that is my privilege. If I can convince you that my methods are right and theirs are wrong, that is my privilege also. I am very sorry that Dr. McMullen has labored under the very serious misapprehension that I rushed to the newspapers with my troubles. The facts and the record prove otherwise. Dr. McMullen has mentioned the appearance of a faint pannus at the upper limbus which can be found often only by close inspection. You can find that in 95 per cent. of all eyes. In response to Dr. Welch, who is of the opinion that this discussion has been academic and uninteresting and not practical, I will relate a practical illustration which will, perhaps, come close to his heart. In Alabama, in the city of Montgomery, within the past few months, the United States Public Health Service diagnosed one hundred cases of trachoma among the school children. The same procedure was suggested there as in South Carolina, namely, excluding the children from school unless and until operated on. Some of the ophthalmologists of Montgomery protested against it. A committee of three ophthalmologists was appointed. That committee examined the 100 cases. And in a letter to me Dr. Thigpen, one of the examiners, said, "Much to the committee's surprise they found not a single case of trachoma." That seems very far from academic. A similar situation arose in Charlotte, N. C., in North Dakota and in various other places. Therefore there necessarily is a question whether or not these cases that are being dealt with as trachoma are really trachoma. I have seen many cases where harm has been done by the substitution of cicatricial tissue and adhesions for normal conjunctiva, and I defy any one to break the conjunctiva without getting a certain amount of scar tissue.

Measles and Whooping Cough.—It is hard for people to realize that there are more deaths from measles and whooping cough than from scarlet fever. Greater efforts in school hygiene would seem to be the only way in which this problem can be coped with successfully, combined with the education of parents in the necessity for the observation of quarantine and isolation procedures.—S. H. Osborn, *Commonhealth*, March-April, 1920.

SYNTHETIC DRUGS—III

THE DIGESTION OF THE TANNIN COMPOUNDS USED AS INTESTINAL ASTRINGENTS BY ARTIFICIAL DIGESTIVE MIXTURES *

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The term "tannin" is applied to a large number of vegetable constituents of indefinite composition which give blue or green compounds with iron salts; these vegetable constituents also precipitate proteins to a greater or less degree and therefore are considered astringents.

The pharmacologic actions of tannic acid are due to their properties of precipitating albumins and other proetins. In the mouth a solution of tannic acid has a typically astringent taste, owing to precipitation of the protein in the tissue, and produces a feeling of constriction and roughness. If the solution is swallowed, the astringent feeling in the throat is continued, and occasionally it causes some discomfort or even nausea and vomiting.[1] The chief internal use of tannic acid is in the treatment of diarrhea; it is employed "not as the principal curative agent but as an occasional adjunct to proper dietetic and physical remedies when the discharges are unduly profuse." [2]

On account of the too irritant properties of free tannic acid in the stomach, it is desirable to slow the action. With this in view a series of compounds of tannic acid have been proposed. Thus there has been evolved (1) the combination of tannic acid with various proteins, such as "Albutannin," "Tannalbin" and "Protan"; (2) organic esters of tannic acid—"Acetannin," "Tannigen," "Tannopin" and "Tannoform"; (3) a heterogeneous group of other compounds —"Tannismuth" and "Gallogen." Theoretically, these substances are presumed to be insoluble in and largely unchanged by the gastric juice, but to be broken up in the intestine in order to allow the tannic acid to exert its influence. As there are quite a number of such preparations on the market, and all are recommended in the treatment of diarrhea, it was suggested by Dr. Sollmann that a study be made of them in order to determine among other things whether they are largely unchanged by gastric juice, and if so whether or not they are capable of decomposition by intestinal juice. Consequently, samples were purchased from retailers in different parts of the country and also directly from the manufacturers or distributors. One half of each respective specimen was sent to Dr. Sollmann for making pharmacologic observations. The remainder was used for the examination conducted in the Chemical Laboratory of the American Medical Association herewith.

OUTLINE OF METHOD OF DIGESTION

Numerous references appear in the literature on the digestion or stability of the various tannin compounds; but as the methods detailed were different, the reports were not suitable for comparisons. It was therefore decided to make a comparative study of the tannic acid compounds which have been included in New and Nonofficial Remedies, and also the recently American-made compounds.

The work was of two phases: 1. To determine during a specified length of time the solubility of the respective compounds in water, hydrochloric acid solution, acid and pepsin solution,. sodium bicarbonate and pancreatic extract solutions.[3] 2. To determine the percentage decomposition at various intervals during the digestion. In the latter phase the nitrogen content of the protein-like compounds was sometimes determined. The methods were chosen so as to approximate as closely as possible the conditions in the body as to reaction, duration, temperature, shaking.

A. *Pepsin-Acid.*—Place from 1 to 2 gm. of the tannin preparation, accurately weighed, into a 500 c.c. glass stoppered flask. Mix 20 c.c. of normal hydrochloric acid solution with 230 c.c. of water, and warm the resulting liquid to a temperature of 40 c.c. Gradually add the warm liquid to the flask with some agitation. Then add 5 c.c. of pepsin solution containing 0.25 gm. of pepsin U. S. P.[4] Place the flask in a constant temperature bath[5] maintained at 40 C.; every ten minutes (as controlled by an automatic alarm), invert the flask during a period of three hours, after which allow it to remain quiet for one-half hour; then filter through a large size tared gooch crucible; wash with three 20 c.c. portions of cold water. Dry at 100 to 110 C. for from ten to twelve hours and weigh.

B. *Acid.*—Proceed as in "A," omitting pepsin.

C. *Water.*—Proceed in general as above, using only water (250 c.c.).

D. *Alkaline Pancreas.*—Place from 1 to 2 gm. of the tannin preparation accurately weighed in a 500 c.c. glass stoppered flask. Dissolve 2.5 gm. (in some cases 5 gm.) of sodium bicarbonate in 250 c.c. of water, and warm the solution to 40 C. Gradually add, with agitation, the warm liquid to the flask. Add 5 c.c. of an aqueous mixture of holadin (containing 0.12 gm. of holadin)[6] to the flask. Place the flask in the constant temperature bath maintained at 40 C.; every ten minutes invert the flask during a period of two hours, after which allow it to remain quiet in the bath for an additional half hour. Then filter through a large size tared grooch crucible. Wash the precipitate with three 20 c.c. portions of cold water. Dry at 100 to 110 C. for from ten to twelve hours and weigh.

E. *Bicarbonate.*—Proceed as in "D," omitting holadin.

TANNIN PREPARATIONS

TANNALBIN

Tannalbin is a compound of tannic acid and egg-albumin, thoroughly exsiccated for six hours at 126 C. It is manufactured by Knoll & Co., Ludwigshafen, Germany, and was formerly sold in this country by Merck & Co. According to the claims, "it is a light brown, odorless powder, containing about 50 per cent. of tannin." "Tannalbin passes *unchanged* [italics ours] through the stomach, and only when exposed to the alkaline intestinal secretions is it gradually split up into its component parts." The experiments conducted in the A. M. A. Chemical Laboratory do *not* substantiate these claims.[7] The three specimens of Tannalbin examined all were partially soluble in water (about one part of *dried* substance in eight parts of water). In acid alone without the addition of pepsin, "Tannalbin" was dissolved to the extent of 33 per cent. in three and one-half hours. In the acid pepsin mixture, however, the product was digested to a considerable extent, averaging 75 per cent. decomposition; in these experiments the solutions (after digestion) responded strongly to the ferric chlorid reaction for tannic acid and soluble tannates, which rules out the theory of soluble compounds of tannic acid which do not have reactions of free tannic acid. In alkaline mediums the digestion, as would be expected, proceeded further when the pancreatic

* From the Chemical Laboratory of the American Medical Association.

* The pharmacologic study has been made by Dr. Torald Sollmann, Western Reserve University. This paper is preliminary to Dr. Sollmann's report.

* The first article of the series was: Leech, P. N.: Examination of American-made Acetylsalicylic Acid, J. Indust. & Engin. Chem., April, 1918, p. 228. (See also editorial, ibid., April 13, 1918, p. 255.) The second article was: Leech, P. N.; Rabak, William, and Clark, A. H.: American-made Synthetic Drugs—II: Examination of Procain (Novocain), Barbital (Veronal), Phenetidyl-Acetphenetidin (Holocain), Cinchophen or Phenylcinchoninic Acid (Atophan), Manufactured Under Federal Trade Commission Licenses, J. A. M. A. 73: 754 (Sept. 6) 1919.

1. Cushny, A. R.: Textbook of Pharmacology and Therapeutics, Ed. 6, Philadelphia, Lea & Febiger, 1915, p. 110.

2. Useful Drugs, Ed. 4, Chicago, American Medical Association, 1920, p. 14.

3. Holadin, Fairchild (see N. N. R., 1920) was used in these experiments, as it represented an extract from the entire pancreas.

4. Five-tenths gram of pepsin was dissolved in 10 c.c. of water, and exactly 5 c.c. of this solution was used. The enzyme used was "pepsin (spongy granular, soluble) U. S. P. Hollister-Wilson."

5. A de Khotinsky constant temperature bath was used. The temperature did not vary more than 0.1 degree C.

6. Five-tenths gm. of holadin was treated with 20 c.c. of water and well shaken. Five c.c. of this mixture was delivered by means of a pipet in the flask.

7. In the 1909 edition of "Prüfungs-Vorschriften für die pharmazeutische Spezialpräparate von Knoll & Co." the manufacturers themselves specify a solubility of almost 50 per cent. in acid-pepsin under less favorable conditions than described in this paper.

TABLE 1.—COMPARATIVE DIGESTIONS

No.	Name	Loss in Weight at 100 C. for 10 Hrs.	Weight of Sample	Amount Dissolved in 250 C.c. H_2O at 40 C., 3½ Hrs.		Weight of Sample	Amount Dissolved in 250 C.c. HCl (0.2%) Without Pepsin, 3½ Hrs.		Weight of Sample	Amount Dissolved in 250 C.c. HCl Plus Pepsin (0.25 gm.) 3½ Hrs.		Weight of Sample	Amount Dissolved in 250 C.c. of 1% $NaHCO_3$ Sol., 2½ Hrs.		Weight of Sample	Amount Dissolved in 250 C.c. of 2% $NaHCO_3$, 2½ Hrs.		Weight of Sample	Amount Dissolved in 250 C.c. of 1% $NaHCO_3$ plus Holadin (0.12 gm.)		Weight of Sample	Amount Dissolved in 250 C.c. 2% $NaHCO_3$ plus Holadin	
				Gm.	%		Gm.	%		Gm.	%		Gm.	%		Gm.	%		Gm.	%		Gm.	%
1	Tannigen (Chicago)	5.3	1.0297 1.0878	0.0891 0.0902	8.6 8.4	....	....	....	1.3897 2.2500	0.0797 0.0440	5.6 1.9	1.0204 1.0175	0.7713 0.7518	75.5 73.9	....	....	....	1.1761 1.4793	0.8147 0.9294	69.2 63.0			
6	Tannigen (Baltimore)	5.6	1.1420 1.2068	0.0684 0.0764	5.9 6.3	....	....	....	1.0817 1.3694	0.0644 0.0890	5.9 6.4	1.2905 1.0468	0.3923 0.3305	30.4 31.5	....	....	....	1.0752 1.4286	0.3411 0.4546	31.7 31.7			
13	Tannigen (New York)	8.6	1.2508 1.0564	0.2067 0.1910	16.5 18.0	....	....	....	0.8137 1.0714	0.1458 0.1848	17.7 17.2	1.4357	Dissolved readily		..... 1.0976	..... Dissolv'd	.... readily	1.0980 0.9891	Very slight ppt.				
11	Gallogen (Baltimore)	....	1.0847 1.0185	0.1821 0.1974	16.8 19.3	....	....	....	1.1847 0.8594	0.1756 0.1477	14.8 17.1	1.1988 0.9559	0.1825 0.1425	15.1 14.8	.....	.....	....	1.0124	0.1751	17.2			
29	Acetannin (Calco)	3.7	1.1675 1.0448	0.0858 0.0660	7.3 6.3	0.8702 1.0781	0.0533 0.0700	6.1 6.4	1.3292 0.5160	0.0668 0.0315	5.0 6.1	1.0327	0.9345	90.5	..... 1.1688	..... 1.1539	.... 98.7	1.0380	0.9021	86.8	2.4407	2.2189	90.9
2	Tannalbin (Chicago)	6.5	1.2369 0.9230	0.2223 0.1711	17.7 18.5	....	....	....	1.0656 1.1866	0.6866 0.6581	64.4 55.5	1.0668 1.0954	0.4444 0.4620	41.6 42.1	....	....	....	1.0013 1.0913	0.5850 0.6192	58.4 56.6			
9	Tannalbin (Baltimore)	8.2	1.3602 1.1276	0.2837 0.2426	20.8 21.5	....	....	....	1.1369 0.9992	0.9079 0.7880	78.9 78.8	1.0360	0.5289	52.0	....	....	....	1.3428 1.4252	0.7808 0.8324	58.7 58.4			
14	Tannalbin (New York)	5.9	1.0084 1.0163	0.2159 0.2127	21.3 20.9	1.2652 1.3313	0.4288 0.4563	33.9 34.2	1.1125 1.3103	0.9434 1.1400	84.8 87.0	..... 1.4727	..... 0.7198	.... 48.8	0.8667	0.4620	53.3	1.0304	0.8034	68.2			
17	Tannin albuminate exsiccated (San Francisco)	5.4	1.3540 1.1356	0.2812 0.2365	20.8 20.8	0.8436 1.3694	0.2986 0.3906	31.7 31.7	1.0910 1.3399	0.7782 1.0042	71.3 74.9	..... 1.0158	..... 0.4163	.... 40.9	1.0963	0.4602	42.0	..... 1.0284	..... 0.5287	.... 51.4	1.4077	0.7463	53.0
24	Tannin albuminate exsiccated (Merck)	9.0	.....	.....	....	.....	.....	....	0.7698	0.5528	71.8	.....	.....	....	.....	.....	....	1.1079	0.4967	44.9			
27	Albutannin (M. C. W.)	7.9	1.3119 1.1436	0.2007 0.1699	15.2 14.8	....	....	....	1.0098 1.3893	0.9635 1.3289	95.5 97.8	1.1515 0.8827	0.3652 0.2901	30.9 32.8	.....	.....	....	1.1952	0.9200	77.0			
28	Albutannin (Calco)	10.2	1.1481 0.9071	0.1862 0.1470	16.2 16.2	....	....	....	1.0387 1.0601	0.9919 1.0391	95.5 95.2	0.7592	0.2610	34.1	.....	.. .. ..	.. ..	0.9925	0.8535	85.9			
5	Protan (Chicago)	8.3	1.2472 1.0045	0.1875 0.1358	15.0 13.5																		
16	Protan (San Francisco)	7.8	1.3688 1.2123	0.2167 0.1955	15.8 16.1	1.0211 0.8695	0.3591 0.3317	35.1 38.1	0.8625 1.3393	0.7005 1.0391	81.2 77.6	..... 1.3100	..... 1.1840	.... 90.3	.....	.....	....	1.4020 0.7495	1.1334 0.7019	80.8* 93.5			
23	Protan (Mulford)	8.6	1.1903 0.9024	0.1959 0.9024	16.3 16.1	1.0284	0.3116	30.3	1.2328	0.3364	72.7	.....	.....	....	.....	.....	....	1.1917	1.1717	98.3			
3	Tannoform (Chicago)	8.5	0.9832 0.9889	0.2142 0.1932	21.6 19.5	....	....	....	1.1145 1.0125	0.1304 0.1223	11.7 12.0	1.0770 1.1760	0.8685 0.9588	80.6 81.5	....	....	....	1.2007 1.0664	0.9447 0.8570	78.6 80.3			
8	Tannoform (Baltimore)	7.8	1.0219 1.0757	0.2403 0.2263	23.7 21.0	....	....	....	..... 1.2241	..... 0.1445	.... 11.8	1.1411 1.3273	0.9424 1.0685	82.5 80.5	....	....	....	1.1243 1.0933	0.8745 0.8467	77.9 77.4			
15	Tannoform (New York)	10.5	0.9534 0.9510	0.4458 0.4403	46.7 46.8	1.1311 0.9908	0.4849 0.4051	42.8 41.8	1.2292 1.0772	0.2381 0.1958	19.3 18.0	..... 1.1386	..... 1.0856	.... 95.3	0.6418	Dissolved in a few minutes		..... 0.6378	..... 0.6105	.... 95.7	0.6219	0.5925	95.3
18	Tannoform (San Francisco)	10.9	1.1709 0.9900	0.4769 0.4200	40.7 42.7	1.0340 1.1020	0.3283 0.3458	31.7 31.3	0.9534 1.0999	0.2001 0.2219	20.9 20.5	..... 1.0752	..... 0.9902	.... 92.0	1.1173	1.0431	93.3	..... 0.7990	..... 0.7145	.... 89.3	1.0284	0.9553	92.8
12	Tannopine (Baltimore)	11.1	1.0881 1.1007	0.1973 0.1837	18.1 16.8	....	....	....	..... 0.9819	..... 0.1977	.... 20.1	1.0541 1.0063	0.2593 0.2834	24.6 28.1	....	....	....	1.3374 1.5370	0.2902 0.4041	21.7 26.2			
20	Tannismuth (San Francisco)	10.3	1.1381 1.1119	0.2051 0.2046	18.0 18.4	1.1645 1.1399	0.2870 0.2910	24.6 25.5	1.2863 1.0094	0.2056 0.1384	15.9 13.7	..... 1.1862	..... 0.1742	... 14.6	1.4249	0.1962	13.7	..... 1.2777	..... 0.0744	.... 5.8?	1.3775	0.1762	12.8

* Washing was not complete.

enzymes were present, *but* the decomposition of Tannalbin did not proceed to as great degree as in the acid pepsin mixture, which is contrary to expectations. The amount of protein in the dried substance in the case of one specimen was 64.1 per cent.

ALBUTANNIN; TANNIN ALBUMINATED EXSICCATED

About two years ago, Merck & Co., New York, presented for the consideration of the Council on Pharmacy and Chemistry "Tannin Albuminated Exsiccated-Merck." The claims and composition for this product were essentially the same as for the German proprietary "Tannalbin." "Tannin Albuminate Exsiccated" was accepted for New and Nonofficial Remedies under that name. Later, other American firms also prepared Tannin Albuminate, and following its custom, the Council coined the nonproprietary name "Albutannin" to describe the products. All the firms have now accepted this name. However, whenever the term "Tannin Albuminated Exsiccated" appears in this paper, it applies to the Merck product purchased *before* the name "Albutannin" was adopted by Merck & Co. The digestion experiments showed little variation between "Tannin Albuminate Exsiccated" and "Tannalbin."

In the case of "Albutannin Calco" and "Albutannin M. C. W.," both products looked much superior physically to "Tannalbin" or the Merck product; the two albutannin products were exceedingly similar in all their characteristics. However, they were digested practically completely (95 per cent.) almost 100 per cent.; in this respect "Protan" differs considerably from Tannalbin, but agrees with the Calco and M. C. W. Albutannin, which may or may not be a commendable feature.

THE RATE OF DIGESTION

In Table 2 is given the amount of "Tannin Albuminated Exsiccated" (24), "Tannalbin" (2 B) and "Protan" dissolved by gastric and intestinal mediums in stated time intervals. In certain cases the amount of protein in the undissolved substance was determined.

"Tannin Albuminate Exsiccated" is dissolved to the extent of 45 per cent. in artificial gastric juice in the first half hour; the amount increases with increased length of time up to two and one-half hours (69.4 per cent.); digestion for another hour had practically no effect. In the sodium bicarbonate-holadin medium, 32 per cent. was dissolved in the first half hour; after one and one-half hours, 44.9 per cent. was dissolved but another hour of digestion did not change the amount dissolved. This observation is important, as it indicates that the tannic acid effect will be exerted in the upper part of the intestine and probably not liberated slowly along the middle and lower tracts.

In acid pepsin mixture, the composition of the undissolved "Tannin Albuminate Exsiccated" was essentially the same in the respective time periods, as was determined by the protein content.[9] It is rather interesting to note that in case of the bicarbonate-holadin digestion of "Tannin Albuminate Exsiccated," the undissolved portion contained about 81 per cent. protein (the original substance assayed 67.9 per cent. protein);[10] the amount of tannic acid which was split off, nevertheless, does not materially increase the available amount in the intestine.

"Tannalbin (2 B)" and "Tannin Albuminate Exsiccated," as would be expected, acted similarly in the period digestion determinations.

Protan.—In the first hour and one-half of the acid-pepsin digestion, "Protan" (23) seemed to be somewhat more easily attacked, but the difference was not so large as to be practically important; but after two and one-half and three and one-half hours, the results were essentially the same as those of "Tannin Albuminate Exsiccated" (24), namely, 72 per cent. dissolved; the amount of protein remained practically constant (the product contains about 15 per cent. less protein than "Tannin Albuminate Exsiccated"). In the alkaline medium "Protan" was dissolved almost immediately, there being no difference between the one-half hour and two and one-half hour treatment. When the filtrate from the bicarbonate-holadin treatment was rendered acid with hydrochloric acid, a substance was precipitated out. In case of the one-half hour of bicarbonate-holadin treatment, the amount of precipitate recovered was 40.2 per cent.; a protein determination (50.5 per cent.) showed the product to have essentially the same composition as "Protan." In other

TABLE 2.—PROGRESSIVE DIGESTION TABLE*

Number	Name	Moisture	Soluble in Water	Acid-Pepsin Treatment					Alkaline-Holadin Treatment			
				½ Hour	1 Hour	1½ Hours	2½ Hours	3½ Hours	½ Hour	1 Hour	1½ Hours	2½ Hours
24	Tanin albuminate..... 67.9	9.0	....	45.1 **66.5**	54.2 **65.9**	60.1 **66.7**	69.4 **67.1**	71.8 **65.5**	32.0 **22.6**	39.9 **13.6**	44.9 **21.7**	44 9 **21.1**
2B	Tannalbin..... 64.1	7.0	20.3	48.2	56.0	61.4	66.7	68.8	43.3	47.4	47.2	48.7
23	Protan..... 51.9	8.6	16.2	59.4 **52.3**	66.8 **54.3**	71.1 **51.8**	72.3 **51.0**	72.7 **53.1**	98.4	....	....	98.3
22	Gallogen.....	...	16.8	....	....	....	....	24.3	18.4	16.0	....	32.4

* Figures in bold face give the amount of protein in the dried substance.

in the artificial gastric medium, and from that standpoint comply least with the supposed therapeutic requirements for the protein-tannic acid compounds.

PROTAN

"Protan" has been stated to be a "synthetic compound of tannic acid with Nucleo-proteid, containing 50 per cent. of tannin." The manufacturers, H. K. Mulford & Co., have stated that "the Nucleo-proteid employed in the production of Protan is milk-casein. No definite chemical formula can be assigned to the product." The claims made for the product are that it "is insoluble in the gastric juice and therefore does not disturb the stomach; when it reaches the alkaline secretions of the intestines, it is dissolved and the tannin set free to act as an astringent on the intestinal walls and the contents of the intestines."

The experiments reported herewith contradict the foregoing claims. "Protan" is quite appreciably soluble in water, and is about 75 per cent. dissolved by artificial gastric digestion.[8] In the alkaline mediums, "Protan" is quite soluble,

8. In the presentation to the Council, the H. K. Mulford Company gave the following test: "The resistance of Protan to the action of gastric juice may be shown by mixing 2 grams (dried at 100 C.) with 40 c.c. of 0.2 per cent. hydrochloric acid containing ten times the theoretical amount of 1:3,000 pepsin necessary to digest the protein present; warming to 40 C. for six hours, filtering off the residue, drying and weighing; from 75 to 80 per cent. of the amount taken may be thus recovered." (See N. N. R., 1920, p. 328.) In 1907, the referee for Protan reported: "Examination of Protan shows that it complies fairly well with the claims made for it. While the test to determine the resistance of Protan to the action of peptic digestion indicated that 65 to 70 per cent., instead of 75 to 80 per cent., resisted digestion, the referee is inclined to believe that this difference may be due to the difficulty of carrying out of the test." The results of the 1907 sample are indeed strikingly different from the three samples tested recently wherein only about 25 per cent. was recovered; of course, the two methods are somewhat different.

9. The gooch containing the residue and asbestos was allowed to "soak" in slightly acidulated water. The contents were then dislodged easily and transferred, with washings, to a Kjeldahl flask. The protein was calculated from the nitrogen content.

10. A very small amount of ferment which may have been precipitated was not deducted in the nitrogen determinations. However, even allowing a maximum possible amount, the results would not be changed materially, as was attested by experiments.

words, the sodium-bicarbonate seemingly dissolved "Protan" as a "sodium 'Nucleo-protein tannate.'" When it is remembered that hydrochloric acid solution (0.2) holds about 36 per cent. in solution, this would indicate that most of the "Protan" was not broken up so as to yield free tannic acid. When "Protan" had been treated for two and one-half hours, the amount recovered was 32.4 per cent.; the protein determination (50.2 per cent.) likewise showed the recovered product to have been unchanged.[11]

THE "ORGANIC RADICAL-TANNIN" COMPOUNDS

TANNIGEN; ACETANNIN

Tannigen was introduced in medicine by Farbenfabriken, vorm. Fredr. Bayer & Co., Leverkusen, Germany; the American proprietary rights are now owned by the Winthrop Chemical Company. "Tannigen" is stated to be a "diacetyltannin" prepared by treating tannin with acetic anhydrid, in the presence of glacial acetic acid. It is claimed to be insoluble in dilute acids or cold water, and to pass "unchanged through the stomach." On reaching the intestine, "Tannigen is decomposed with the liberation of tannic acid."

All the "Tannigen" samples had a strong odor of acetic acid, and gave a reaction for tannic acid. The solubility in water varied. When treated with the bicarbonate mediums (Table 1) the results varied widely. In the case of one sample, only about 30 per cent. was dissolved; in another, 69 per cent. was dissolved, while in two others the solution was practically complete in from five to fifteen minutes. In the case of Specimen 13, although it dissolved readily in sodium bicarbonate solution, yet after two and one-half hours' treatment at 40 C. it still yielded a precipitate on acidulation which showed that it had not been hydrolyzed completely into sodium acetate and sodium tannate, but very likely was present in part as sodium acetyltannate. A sample submitted to the Council by the Winthrop Chemical Company (Tannigen 32), when treated with 1 per cent. sodium bicarbonate solution at 40 C., was dissolved in one-half hour 15.7 per cent.; in one hour, 19.9 per cent.; in two hours, 34.7 per cent.; in three hours, 38.4 per cent.; and after twenty-four hours, 84.7 per cent. had dissolved. The remainder could not be dissolved by 10 per cent. sodium hydroxid solution. Another sample (Tannigen 21) was exceedingly dark in color and almost entirely soluble (1.2 gm.) in 250 c.c. of warm water; the insoluble portion acted much like a gum, sticking to the sides of the flask. It was immediately soluble in sodium bicarbonate solution.

Acetannin.—When the Calco Chemical Company presented its "Tannigen-like" compound to the Council for consideration, the Council coined the nonproprietary name "Acetannin." "Acetannin Calco" is claimed to be the same chemical product as "Tannigen." Only one specimen of "Acetannin Calco" was examined in this series. However, the product was much superior to the Tannigen samples in its physical characteristics. It was practically insoluble in water and acid solution, but decomposed by sodium bicarbonate. It dissolved immediately in sodium bicarbonate at 40 C., but some could be recovered after one hour by acidulation, while after two and one-half hours none was recovered, indicating a complete hydrolysis. In all particulars, acetannin behaved according to theory However, market specimens have not been analyzed as yet to determine whether or not the product is uniform in this respect

The Rate of Hydrolysis of Acetannin Calco and Tannigen and the Variation in Astringency.—As may be noted in Table 1, the degree of solubility of the Tannigen preparations in sodium bicarbonate solutions varied, while Acetannin Calco was almost immediately soluble. Hence it was of value to obtain some idea as to the rate of decomposition as well as the solubility at certain intervals and also to observe the degree of astringency. The preparations were treated with 1 per cent. sodium bicarbonate solution at 40 C. for a definite period, and then titrated at 40 C. with normal volumetric hydrochloric acid solution to an approximate end-point, alizarin red being used as the indicator. (It was realized that the method was not accurate, owing to the coloration of the solutions, but it was sufficiently approximate to yield interpretative findings.) The astringency, after the titration, was determined according to the method of Sollmann, the effect of 10 c.c. of the solution on 10 c.c. of a 10 per cent. egg albumin solution being noted. The results are recorded in Table 3, employing such relative terms as turbidity, moderate precipitate, heavy precipitate, etc.

From this table it will be seen that the hydrolysis of the acetyl tannic acid type of compound is not immediate even when quite soluble in sodium bicarbonate solution; that the astringency increases with hydrolysis; that the composition of tannigen is so variable (owing very probably to lack of sufficient purification) that different specimens act like different compounds. The results indicate that practically the maximum astringent effect of Acetannin Calco would be exercised after one hour; in the case of Tannigen, the samples examined varies so widely that no general deduction can be drawn.

TABLE 3.—HYDROLYSIS AND ALBUMIN TEST

	C.c. of Normal $NaHCO_3$ Solution Used by 1 Gram				
	½ Hour	1 Hour	2 Hours	3 Hours	24 Hours
Acetannin Calco	3.18 Mod. ppt. dissolved readily	6.32 Heavy ppt.	6.99 Heavy ppt.	7.17 Heavy ppt.	7.5 (?) Heavy ppt.
Tannigen 13	4.7 Mod. ppt. dissolved readily	5.7 Heavy ppt.		6.0 Heavy ppt.	
Tannigen 32	1.5 Slight turbidity 15.7%* dissolved	1.6 Slight turbidity 19.9% dissolved	3.3 Heavy turbidity 34.7% dissolved	3.4 Heavy turbidity 38.4% dissolved	Not titratable, heavy ppt. 84.7% dissolved

* The undissolved precipitate was filtered off, dried, weighed and the dissolved portion calculated.

Tannigen 21 dissolved immediately yielding a solution too dark for titration but giving heavy precipitate with albumin. Only a small amount of Tannigen 6 was left after making the determinations in Table 1; although about one-third soluble then, after standing six months not carefully protected from moisture, it was almost entirely soluble in sodium bicarbonate solution.

Tannoform was originally manufactured by E. Merck & Co., Darmstadt, Germany, and sold in the United States by Merck & Co., New York. It is stated to be "tanninformaldehyde," a "condensation product of formaldehyde and tannic acid." Similar to other products of this class, "Tannoform is claimed to be insoluble in water or gastric juice, but in the intestines to be split into free tannic acid and formaldehyde."

Four specimens of "tannoform" were examined. They varied greatly in solubility in water. Acid solution alone renders "tannoform" slightly less soluble, while in the pepsin-acid medium the solubility is reduced considerable, owing probably to a precipitant action of the protein. Tannoform is soluble in sodium-bicarbonate mediums to the extent of from 65 to 95 per cent.; the solution was effected almost immediately at 40 C. The product which did *not* dissolve could not be decomposed by either steam distillation or hot sodium hydroxid solution (10 per cent.). In case of Tannoform 4, when the filtrate from the sodium bicarbonate mixture after remaining three and one-half hours at 40 C. was acidified with dilute hydrochloric acid, about 26 per cent. was recovered from the solution, while 32 per cent. had not been dissolved by the sodium bicarbonate and was removed previous to acidification. Bearing in mind that the solubility of this specimen "tannoform" in hydrochloric acid solution is about 20 per cent., the deductions are that at least 80 per cent. of "Tannoform 4" was not decomposed to formaldehyd and tannic acid.[12] I am inclined to believe that such quanti-

11. In a personal communication to the author, Dr. Sollmann stated that the amount of precipitate depends on the degree of acidity; the figures as to the amount of precipitate therefore have little quantitative meaning. However, the constant nitrogen percentage in the precipitate shows that this part of the tannin is still combined. As a matter of fact, the tannin-protein compound is probably not broken up until the protein is reduced to amino-acid and absorbed.

12. A mixture of formaldehyd and tannic acid in such concentrations as would be comparable for the experiment did not form a precipitate on the addition of dilute hydrochloric acid.

ties of formaldehyd as were liberated in both acid and alkaline mediums were due to either (*a*) some mechanically enclosed formaldehyd or (*b*) to a small amount of a compound which was capable of hydrolysis; but that the major portion of "tannoform" was a mixture of condensation products, resistant, as are the formaldehyd-hydroxy compounds, to the actions of hydrolitic agents. Also "tannoform" is not the definite chemical substance as claimed. From a therapeutic standpoint, the question to be settled then is whether or not the so-called soluble "sodium formal-tannate" is of value.

Tannopin is another product of the Bayer concern of Leverkusen, Germany. It is not at present on the American market. "Tannopin is also claimed to be a definite chemical substance "Hexamethylene-Tetramine-Tannin," which, as the name indicates, is a condensation product of hexamethylenamin and tannic acid. It is presumed to pass through the stomach unchanged but to liberate tannic acid in the intestine. The experiments show it to be about equally soluble in acid and alkaline medium—20 and 24 per cent., respectively. It does not seem to be very promising for therapeutic use.

MISCELLANEOUS COMPOUNDS

Tannismuth is a product of the Chemische Fabrik von Heyden, Germany. It is stated to be a bitannate of bismuth, and that "one molecule of the tannic acid becomes operative immediately after digestion, while the other is slowly separated." One specimen of tannismuth was all that could be obtained for the experiments, but this specimen showed the product to be more soluble in the acid medium (24 per cent. dissolved) than in the alkaline medium (14 per cent. dissolved in 2 per cent. sodium bicarbonate solution). This condition, of course, means that more tannic acid can be liberated in the stomach than in the intestine, which is not the desideratum.

Gallogen is described as "anhydrous ellagic acid prepared from dividivi, the pods of *Caesalpinacoriaria*." It is supposed to be insoluble in water and acid mediums, but very slowly decomposed in the intestine. It is sold in the United States by Bischoff & Co., New York. I examined two specimens. Gallogen is somewhat soluble in acid medium (from 16 to 24 per cent.), but is not rendered very soluble by sodium bicarbonate, even after two and one-half hours' treatment at 40 C. The alkaline filtrate resembles a colloidal solution, so that other factors may enter in its action in the intestine. The chemical data given in this paper are not sufficient to draw a conclusion as to the usefulness of gallogen.

COMMENT

Solubility in Water.[13]—"Acetannin" is practically insoluble in water; the majority of the products are dissolved to the extent of 20 per cent., while in the case of two of the "Tannoform" specimens about 40 per cent. could be dissolved.

Acid Alone and Acid Plus Pepsin.—"Tannaform" and "Tannismuth" are more soluble in acid alone (0.2 per cent.) than acid plus pepsin. The solubility of the protein tannic acid compounds are increased greatly by the addition of pepsin. The solubility in acid-pepsin solution varies widely for the different compounds. The least soluble is "acetannin (Tannigen)"; this is followed by "Gallogen," "Tannopin," "Tannismuth" and "Tannoform" (from 11 to 24 per cent.). "Tannalbin" and "Albumin Tannate Exsiccated" are broken down to an excessive extent, while "Albutannin Calco" and "Albutannin M. C. W." are decomposed almost completely and are least desirable.

Solubility in Sodium Bicarbonate and Sodium Bicarbonate Plus Holadin Solutions.—The employment of 1 or 2 per cent. sodium bicarbonate solution made practically no difference. In the case of "Acetannin," "Tannigen" and "Tannoform," the presence of holadin did not alter the result. "Tannoform" was very soluble in the alkaline mediums, but it is doubtful whether it is decomposed at all in the intestine. "Acetannin Calco" was dissolved readily by sodium bicarbonate and apparently completely hydrolyzed. In the case of the protein compounds, "Tannalbin" and "Tannin Albuminate Exsiccated" may be made very much more soluble by addition of holadin. Protan, however, which is the most soluble protein compound in alkaline-holadin mixture, probably forms a sodium salt in which the tannic acid is bound.

Variability.—"Tannigen," as on the market, is not a uniform product, and in some cases seems to be in a very impure condition. "Tannoform" also is not of reliable composition.

Standards.—There is great need for standards. The method for all the products should be the same, and the one used in this series seems eminently satisfactory. It remains simply to set limits for the individual products. This can best be done after consultation with the manufacturers.

CONCLUSION

1. Only one type of the tannic acid compounds studied completely resists the action of the gastric juice and is broken down in the intestine according to theory. i. e., the diacetyl tannic acid compound. "Acetannin Calco" is satisfactory (however, only one specimen of this product was available when the study was made). "Tannigen" is fairly satisfactory in some instances; in others it is not; certain it is that the market supply of "Tannigen" is not of reliable composition.

2. "Protan" and "Tannoform" are both readily soluble in sodium bicarbonate mediums. They are probably not broken up to a great extent in the intestine.

3. "Albutannin Calco" and "Albutannin M. C. W." are not nearly so resistant to the acid-pepsin digestion as "Tannalbin" and "Tannin Albuminate Exsiccated." Both "Tannalbin" and "Tannin Albuminate Exsiccated" (the latter now sold as Albutannin Merck) are themselves not sufficiently resistant to the acid-pepsin medium, but they do liberate free tannic acid in the alkaline-pancreatic medium.

4. With the exception of the specimen of Acetannin, none of the products which were examined according to the methods described in this paper conformed strictly to the claims made for them.

13. In referring to the table under solubility in water, it should be borne in mind that the moisture per cent. should be subtracted. As the reactions described are those of hydrolysis in the main, it necessitates that close analytic results may not be obtained, in consideration of the law of mass action; this, however, is only one of a number of complicating technical factors.

METHODS OF CULTIVATING THE GONOCOCCUS AND OF TESTING GERMICIDAL AGENTS AGAINST IT

PRELIMINARY NOTE *

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In the course of a series of studies on venereal diseases, undertaken with the assistance of a grant from the United States Interdepartmental Social Hygiene Board, it was thought desirable to develop improved methods of handling and experimenting with the gonococcus in the laboratory. The gonococcus is usually considered difficult to cultivate. Its growth is described as scanty, and its susceptibility to heat, light and manipulation is great. Numerous culture methods have been described, each being used with greatest success only by its originator. Studies of the germicidal action of drugs on the gonococcus are rare and incomplete. We have attempted, therefore, to devise a standardized, simple method of growing the gonococcus, and a standardized, practicable method of testing the activity of drugs against it.

It will readily be seen how important to all workers interested in gonorrhea, a simple method of cultivating the gonococcus would be. The distribution of gonococci in the body could be accurately worked out. Many useful applications to urologic and gynecologic

* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital, with the aid of funds granted by the United States Interdepartmental Social Hygiene Board for research in the prevention and cure of venereal diseases.

diagnosis could be made. Serologic and immunologic studies could be greatly amplified and extended.

The present day treatment of gonorrhea is entirely empiric. No studies of value have been made on the power to kill gonococci of the various drugs used in this treatment. Yet the conception on which most of the methods have been founded is that of the germicidal value of some substance. The collection of clinical data bearing on the treatment of gonorrhea is an extremely difficult task. As a result of this fact, many worthless treatments have been tried over long periods of time on large numbers of patients. If one were able to determine directly the gonococcidal power of any desired substance, it is clear, even from the most conservative point of view, that comparative values so obtained would enable an intelligent selection to be made of those drugs deserving of the difficult and extended clinical trials, when other factors, such as penetration, absorbability and rapidity of action, come into play. Such studies have a further field in the problem of prophylaxis, when the infecting organism is still presumably on the surface and therefore more readily accessible. The most powerful gonococcide should be the best prophylactic.

CULTURE METHODS FOR GONOCOCCI

The fact that so many mediums have been proposed for use in cultivating the gonococcus is itself an evidence that none of them has been entirely satisfactory. Numerous unsuccessful attempts have been made to grow the gonococcus on the ordinary agar mediums. Some of the mediums recommended are acid and some alkaline in reaction. Many of them are very complicated to prepare. The gonococcus was first successfully cultivated on mediums enriched by the addition of coagulated human placental serum.[1] Later the value of the addition of ascitic or hydrocele fluid was demonstrated by Wertheim.[2] Young,[3] in his work on gonococcal infections, developed a medium which he used with success. This was made by the addition of hydrocele or ascitic fluid, obtained under strictly aseptic conditions, to ordinary agar medium.

Wherry and Oliver[4] called attention to the fact that the gonococcus grows best at a lowered oxygen tension. They reduced the oxygen tension in a manner which cannot be applied satisfactorily to large numbers of cultures, so that we set about to find a simpler technic. A number of methods to accomplish this were tried, and the method described below developed. It is extremely simple and very efficient, and can be used without any elaborate apparatus. It has given us satisfactory results, and by following this procedure, the organisms can be grown with ease and great profusion.

AUTHORS' METHOD

The medium is a 2 per cent. beef or veal infusion agar, prepared in quite the ordinary manner, which is brought to a reaction of p_H 7.6, phenolsulphonephthalein being used as an indicator. After autoclaving, the reaction comes to about p_H 7.4. Sterile ascitic, pleuritic or hydrocele fluid is added to the melted agar in the proportion of one part of fluid to two parts of agar. The tubes are then corked with sterile rubber stoppers and slanted. This corking prevents evaporation, and allows the medium to be kept in the incubator, which detects any contamination and keeps the medium warm for inoculation at any time. The rubber stopper has the further advantage that it prevents contamination much more surely than the ordinary cotton stopper.

The inoculation is made as plentifully as possible. It is important to have the medium at body temperature when inoculation is made, to keep it so thereafter, and to prevent cooling of the material before inoculation. Immediately after inoculation, the tube, held horizontally, is turned so that the agar slant is uppermost. Held by the butt, it is then passed longitudinally through the Bunsen flame about three times and quickly corked. Experiments with suitable apparatus show that this procedure heats the air in the tube sufficiently to cause the pressure within to be lowered from 70 to 100 mm. of mercury (about 10 per cent. of atmospheric pressure) when the tube is again cooled to 37.5 C. Yet the medium is not coagulated nor are the gonococci harmed. By following this simple technic, we obtain with perfect regularity visible colonies in from twelve to fifteen hours, and profuse growths in twenty-four hours. The viability of the gonococcus on this medium is about seven days. Pure cultures can usually be made from acute urethritis cases directly, if the meatus is carefully cleaned beforehand and the cultures are made from well within the urethra. If other organisms are present, plates may be made from the same medium, and placed in the incubator in vacuum desiccators, in which the pressure is lowered 10 per cent. Good growth may be obtained on fluid mediums prepared as above except for the agar, and with or without sugar. The agar tubes should have, after hardening, a small quantity, about 0.5 c.c., of water of condensation in the lower angle of the slant. This assures the best growth.

In this laboratory, we have made thousands of cultures, using this technic, and have never failed to obtain growth. Primary cultures have been successful in every case in which gonococci were clearly demonstrated in smears. We feel that the method is so simple that it should be practicable for almost every worker and in almost every laboratory, even if not extensively equipped. In well equipped laboratories, it enables large numbers of cultures to be handled with a great saving in time, space and apparatus.

Details of the method, the results, and of newly observed cultural characteristics of the gonococcus on this medium will be published in the near future.

METHODS OF TESTING ANTISEPTICS

Two general methods of testing drugs against the gonococcus have been followed in the past. They may be designated as the inhibition method and the germicidal method. The first of these has been utilized by a number of investigators, because of its simplicity and of the difficulties connected with growing and handling the gonococcus. With this method, varying concentrations of the drug to be tested are mixed with the culture medium, on which the gonococci are then implanted. The organisms thus remain constantly in contact with the same concentration of drug, and when no growth occurs, it may be due, not to the death of the gonococci, but to the presence of sufficient of the drug to inhibit their growth. The usefulness of this method is therefore limited.

In the second, or germicidal method, the organisms are exposed for a definite length of time to the action of the drug chosen. At the end of this time a sample is removed and planted on fresh medium. Failure to grow indicates that all the organisms have been killed by the drug. This transfer in the case of ordinary organisms is usually made with a platinum loop, carrying over a small quantity of the germicidal substance with it. It has generally been found unsatisfactory for use with the gonococcus, owing to the difficulty of culture and the difficulty in obtaining growth after transfer with the small quantity carried

1. Bumm: Beitrag zur Kenntniss des Gonococcus, Wiesbaden, 1885.
2. Wertheim: Arch f. Gynäk., 1892.
3. Young, H. H.: Johns Hopkins Hosp. Rep. **9**: 677, 1900.
4. Wherry, W. B., and Oliver, W. W.: J. Infect. Dis. **19**: 288 (Sept.) 1916.

by a platinum loop. Such a technic used for the gonococcus is in our opinion unsuitable and gives values that are much too high.

The researches of Chick,[5] Norton and Hsu,[6] and others have thrown much light on the laws governing germicidal action. Keeping in mind these considerations, we concluded that a suitable test for the gonococcus required the following essential points: 1. The time of the test must correspond to the time during which a drug might act in the urethra. 2. The number of gonococci in the test emulsion must be large, to correspond to clinical conditions. 3. The number of gonococci transferred to the medium after contact with the drug must be large, and they must be freed in some way of excess of drug. 4. Only those concentrations that kill completely must be considered. 5. The test temperature must be that of the body. 6. Some organic matter must be present. A full discussion of these points will be published in later papers.

In our researches, all other conditions were kept as constant as possible. The medium was always prepared in exactly the same way, except for variations between different samples of body fluid. The cultures were twenty-four hour growths of strains that had been transferred frequently in the laboratory. The final technic, which has been used in a large number of tests, is as follows:

FINAL TECHNIC

1. *Emulsion.*—The emulsion of gonococci is prepared immediately before the test by stirring up the growth covering the surface of a hydrocele or ascitic agar slant with 7.5 c.c. of sterile 0.85 per cent. salt solution. This gives a small quantity of serum in the emulsion, which is then poured into a tube fitted with a pipet passing through a cotton stopper, shaken with glass balls, and placed in the water bath 37.5 C.

2. *Dilutions of Drug.*—Dilutions of the drug to be used are made up with aseptic precautions, in such a manner that the addition of 1 c.c. of emulsion will bring them to the desired concentration for the test. Each dilution is then placed in a sterile cotton-stoppered centrifuge tube. The tubes are kept in the incubator until they are to be inoculated.

3. *Procedure.*—One c.c. of the emulsion is pipetted into a centrifuge tube of diluted drug. The tube is placed in the water bath at 37.5 C. for eighteen minutes. At the end of this time, it is centrifuged at high speed for two minutes. The supernatant fluid is poured off, and 2 c.c. of sterile 0.85 per cent. salt solution pipetted in. This makes the complete time of action of the drug twenty minutes The tube is then centrifuged a second time, and the wash fluid poured off. The gonococci settle readily in the centrifuge, and form a compact mass at the tip of the tube. They can be transferred, almost *en masse*, to a tube of fresh medium, which is corked and incubated, as described in the paragraph on culture methods. It is our custom to inoculate, after seven days, all tubes on which no growth has occurred, with fresh cultures of gonococci. If they develop, we assume that enough of the drug has not been carried over to the test medium to prevent growth.

Using this standard method, we have tested a large series of drugs used in the treatment of gonorrhea, as well as a number of new substances of the mercurochrome series developed in this laboratory,[7] and others not hitherto used in urologic practice. Our results show that some of these new mercurochrome drugs are more effective than any others yet tested, and superior to mercurochrome-220. We have also made comparative tests, using *B. coli* and *S. aureus*, which show a somewhat lower germicidal value than by the commonly used technics. The comparative tests afford a basis on which the relative susceptibility of the gonococcus and other organisms can be calculated.

Full details of the results of these tests will be published shortly.

5. Chick: J. Hyg. **8**: 92, 1908. Chick and Martin: Ibid. **8**: 654, 1908.

6. Norton, J. F., and Hsu, P. H.: J. Infect. Dis. **18**: 180 (Feb.) 1916.

7. Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in the Genito-Urinary Tract: "Mercurochrome-220," J. A. M. A. **73**: 1483 (Nov. 15) 1919.

SYMPTOMATOLOGY OF SPINAL CORD TUMORS *

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Since 1888, when Sir Victor Horsley showed that spinal cord tumors can be successfully removed, neurologists the world over have attempted to establish criteria by which an early diagnosis may be made. Classical works on the subject have been written, and still the fact remains that spinal cord tumors are frequently overlooked and often not found till late in the course of the disease or only postmortem. It has been our motto to regard with suspicion any transverse myelitis of progressive character. In these cases very careful anamnesis and painstaking examinations have done much to solve some of the problems. We have therefore elaborated the following rather terse and compact scheme which we trust may be of as much assistance to others as it has been to us. Our percentage of correct diagnosis and correct localization has risen considerably. Tumors of the spinal cord, in brief, are extradural, extramedullary and intramedullary. In this communication, we will deal only with the latter two varieties.

By far the most frequent and the most important, from a diagnostic and therapeutic point of view, are the intradural and extramedullary tumors. The symptomatology of this class of tumors divides itself into two main groups: (1) early, or root symptoms, and (2) cord compression, or later symptoms. A third group of symptoms may be mentioned, namely, those signs referable to bony, vertebral involvement.

In extramedullary tumors, we differentiate signs of tumors whose density is greater than that of the cord from those whose density is equal to or less than that of the cord.

This distinction has not hitherto been sufficiently accentuated. To our mind, this difference is of vital importance in recognition of tumors of the cord. It is especially true of cases of the softer tumors, in which most of the errors of diagnosis and localization have been made.

Extramedullary tumors whose density is greater than that of the cord show, in brief, these signs:

1. Root signs:
   (*a*) Muscular spasms and twitchings.
   (*b*) Pains.
   (*c*) Paresthesia.
   (*d*) Hyperesthesia.
   (*e*) Changes of reflex, both deep and superficial, at the seat of the tumor.

* Read before the Section on Nervous and Mental Diseases at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

2. Signs of moderate compression:
   (*a*) Homolateral paresis below the seat of the lesion.
   (*b*) Homolateral hyperflexia and hypertonia below the lesion.
   (*c*) Alterations of superficial reflexes of the homolateral side below the lesion.

3. As the compression increases, further and marked evidences of tract interferences:
   (*a*) Paralysis of the same side.
   (*b*) Marked spasticity, with exaggeration of tendon reflexes and clonus; Babinski and other pathologic plantar reflexes on the same side.
   (*c*) Beginning hyperreflexia and hypertonia of the opposite side below the level of the lesion.
   (*d*) Beginning disturbances of pain and temperature sense on the heterolateral side, beginning at the lowest segment and slowly climbing upward.
   (*e*) Impairment of the vibratory, postural and localization sense homolaterally.
   (*f*) Difficult, delayed and interrupted micturition and constipation.

4. With still greater cord compression:
   (*a*) Paralysis of both sides below the level of the lesion and more marked at the homolateral site.
   (*b*) Tract sensory disturbances (pain and temperature) on both sides, but more marked on heterolateral side and reaching its maximum over the sacral and lower lumbar distribution.
   (*c*) Retention of urine and feces.
   (*d*) Bilateral loss of superficial reflexes, bilateral, Babinski, etc.

5. With very marked cord compression, signs of a transverse myelitis:
   (*a*) Pain and temperature disturbances now at their highest level, corresponding physiologically to the seat of the lesion (from two to three segments below the actual seat).
   (*b*) Complete bilateral spastic paralysis.
   (*c*) Complete retention of urine and feces, with overflow incontinence.
   (*d*) Beginning disturbance of the tactile sense.

6. Lastly, signs of complete transection of the cord:
   Complete bilateral flaccid paralysis with abolition of all the deep and superficial reflexes; incontinence of urine and feces; complete anesthesia, analgesia and thermesthesia; marked trophic changes.

The level remains practically unchanged throughout the course of the disease.

A tumor with density equal to or less than that of the cord causes little interference of the cord by pressure.

Early anterior or posterior root signs with a belt of hyperesthesia are rarely as marked as in hard tumors. This hyperesthesia is frequently transient and may be easily overlooked. The root symptoms frequently appear earliest over the distal distribution of the nerve.

Cord signs are due to interference by the tumor mass with the lymphatic and venous circulation of the cord and result in secondary edema. A soft tumor can reach a considerable size and slowly mold itself around the cord without causing any marked signs of tract involvement.

All the motor tract signs enumerated in the hard cord tumors are also present here, only to a milder degree. Both the tract motor and sensory signs, though less in degree, are most marked at the site or just above and below the lesion, and spread downward with diminishing intensity. In hard tumors, it will be remembered, the tract sensory disturbances are greatest in the lowest spinal segments. In soft tumors the tract disturbances are just above, at and below the seat of the tumor. The spread of signs and symptoms is very suggestive of intramedullary growths and syringomyelia.

In the soft tumor group, there is a considerable parallelism between the motor and sensory signs in contrast to the more marked and earlier motor tract involvement seen in cases with hard tumors.

In contradistinction to hard tumors, the level symptoms are not stationary. The upper edge of the level may move for about two or three segments higher.

The presence of xanthochromia in the cerebrospinal fluid is more common in soft tumors.

It is in soft tumors, especially with few signs of cord compression, that a lumbar puncture is likely to be followed by the first absolute evidences pointing to a level of cord compression. Another peculiarity is that in the soft tumor, the root signs are not infrequently bilateral as in contrast to hard tumors, in which until late in the disease they remain unilateral. There is also found in the soft tumors, before operations, remarkable remissions and exacerbations in the course of the disease. A resemblance to multiple sclerosis and syphilis must be borne in mind.

DIFFERENTIAL DIAGNOSIS BETWEEN EXTRAMEDULLARY SOFT TUMORS AND INTRAMEDULLARY TUMORS

1. Pain is present from the beginning in all soft tumors, but only in those intramedullary tumors in which the tumor reaches the posterior roots or surface of the cord. Pain in intramedullary tumors is, therefore, usually a late phenomenon, or may not occur at all if posterior roots or the meninges are not affected.

2. In the vast majority of cases, the symptoms develop more rapidly in extramedullary soft tumors.

3. Tract sensory signs and symptoms are more intense and more widespread in intramedullary tumors.

4. Trophic changes are greater in intramedullary tumors.

5. Intramedullary tumors show less rectal and vesical signs.

6. Xanthochromia is rare in intramedullary tumors. It appears only when the tumor reaches the surface of the cord.

7. Deep spinal column tenderness indicates rather an extramedullary tumor.

REPORT OF CASES

In the brief space at our disposal, it was impossible to deal with all the details of our histories of cases of spinal cord tumors. It has been our object, therefore, to condense the records as far as possible, the histories of all our cases, giving only their salient features, their chronological succession of symptoms and signs. Other cases and further studies have been reserved for a later publication.

CASE 1.—H. R., man, aged 38, widower, salesman, admitted, Nov. 24, 1913, discharged, July 1, 1914 who presented a negative family history, and who had had gonorrhea several times, had noticed a tickling sensation over the right leg, three years prior to entrance and two months later, "soreness" over the right leg. At about the same time he noticed that while taking a bath the upper part of the body was more sensitive to heat than the lower. Four months later, his right knee became stiff and he experienced twitchings in the right leg. Two months later, the left knee became stiff. Still later, urination became frequent and there was difficulty in locomotion.

At this time the patient was admitted into a hospital, where he was carefully examined. The findings there in brief were: absence of both lower abdominal and cremasteric reflexes; a

spastic paraplegia with signs more marked on the right than on the left side; a broad belt of hyperesthesia between the seventh and the tenth dorsal segments, and a line hypalgesia down to the twelfth dorsal segment. Spinal cord tumor was diagnosed. The operation performed extended from the tenth to the twelfth dorsal lamina. No tumor was found at the site.

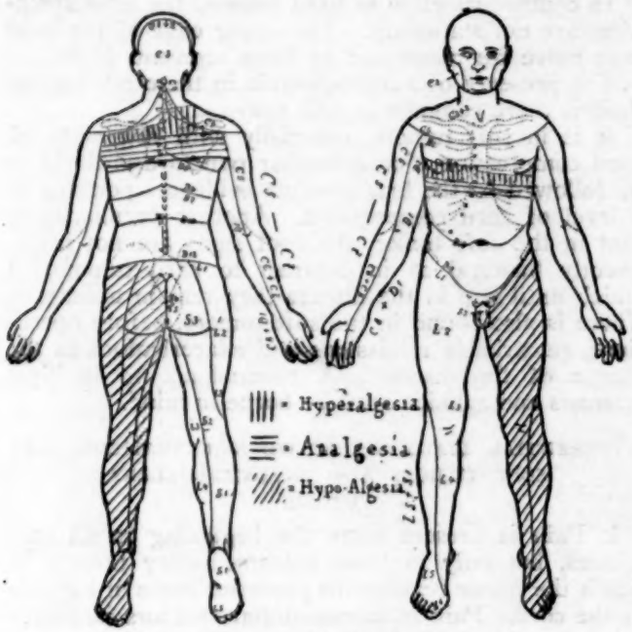

Chart 1.—Sensory disturbances in Case 1.

Nov. 24, 1913, the patient was admitted to the Montefiore Home with a diagnosis of syringomyelia. Here painstaking and careful examination revealed a level of hyperalgesia corresponding to the fourth dorsal segment on the left and to the fifth on the right. This was followed by an area of analgesia ending at the seventh dorsal; also distinct tract sensory changes confined to the left thigh. There were also inconstant sensory disturbances along the anterior surface of the thighs from below Poupart's ligaments. There was a marked spastic paraplegia, and the patient was confined to a chair. Impotence and urinary incontinence were present. There were some slight trophic changes over the skin of both feet. The upper extremities, as well as the cranial nerves, were normal.

While at the Montefiore Home, the patient developed a sense of painful constriction around the chest. Coughing and sneezing increased the pain. The sensory disturbances are indicated in Chart 1. A diagnosis of spinal cord tumor somewhere between the fourth and sixth dorsal segments, situated at the right side of the cord, was made. Under these circumstances, another laminectomy was advised.

Jan. 2, 1914, Dr. Elsberg performed the operation. Following is his report:

Laminectomy and removal of extramedullary tumor at the fifth cervical segment. Typical removal of spinous processes and laminae of sixth and seventh dorsal and first dorsal vertebrae. Incision of dura. Small amount of cerebrospinal fluid escaped. No evidence of a new growth. With a probe, a resistance was felt about 2 inches higher up. The fourth and fifth arches were therefore removed and the dural incision; lying on the posterior surface of the cord a little to the right was a small brownish-red tumor about the size of an almond. The growth was adherent to the inner surface of the dura by a few line adhesions; after the division of which, the tumor was lifted out of its bed and removed. Closure of dura, muscles, fascia and skin. Pathologic report of tumor: Psammoma.

July 1, 1914, the patient was discharged from the Montefiore Home practically well.

CASE 2.—J. B., admitted, July 22, 1919, discharged, Nov. 13, 1919, whose family and personal histories were negative, felt sharp, needle-like pains in the three inner fingers of the left hand eight months prior to entrance to Montefiore Hospital. There was loss of dexterity in these fingers. Two months later there was paresthesia in the left hip and then in the left leg. Stiffness and numbness of the left leg interfered with walking. The pain in the fingers ceased with the appearance of stiffness in the left upper extremity all through the disease. The last symptom to develop was difficulty in starting the urinary stream.

Examination revealed: nystagmus to the right and upward; convergent strabismus in the right eye; angulation of both hands; wasting of the musculature of the left upper extremity, most marked in those muscles supplied by the ulnar nerve; brachialis anticus not affected; sagging of the left shoulder; von Grafe's sign of the left eye; the left pupil smaller than the right; reflex of upper extremities increased, left more than right; twitchings of the muscles of the left lower extremity; spasticity with ankle clonus of the left lower extremity; no Babinski reflex; xanthochromia with massive coagulation present.

Following the lumbar puncture, the level signs became more pronounced. The sensory disturbances are indicated in Chart 2. A diagnosis of a cervical cord tumor of the soft, giant variety was made. The highest level of the tumor was placed at the third cervical segment.

Sept. 18, 1919, Dr. Harold Neuhof performed the operation. Following is his report:

Typical laminectomy incision. Spines and arches of fourth, fifth and sixth cervical and subsequently third and seventh; dura opened between traction sutures. There extruded at once, with an escape of some fluid, the upper cystic pole of the tumor. Posterior roots could not be found, and for some time it was impossible to determine whether or not the tumor was an intramedullary one which had broken through, and finally by carefully lifting the cystic cap the extreme upper pole slipped out from under the area of the second cervical and immediately after the lower pole, and then the whole tumor slipped free. Its attachments were two left posterior roots (left). Tumor arose from pia-arachnoid. The cord was extensively flattened, more so on the left than on the right side.

CASE 3.—F. G., a woman aged 20, who entered the Montefiore Home, April 18, 1919, and who is at present in the hospital, presented negative personal and family histories, and gave the following chronological record of her symptoms, which began ten months prior to entrance: (1) diplopia; (2) weakness of the left upper extremity; (3) sudden pain in the back of the neck, radiating into the back of the head;

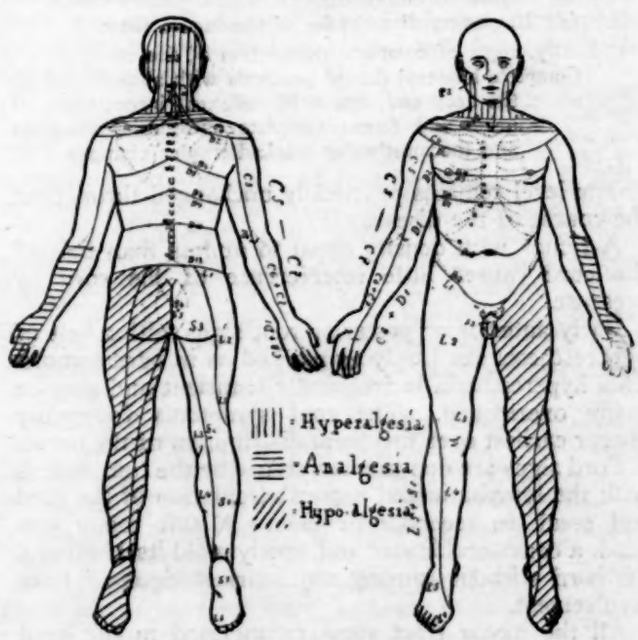

Chart 2.—Sensory disturbances in Case 2.

(4) evidence of thermesthesia over the left shoulder; (5) weakness of the right upper extremity; (6) weakness of the right lower extremity; (7) loss of bladder control, and (8) quadriplegia.

It took ten months for these symptoms to develop. April 20, the right pupil was larger than the left. There was nystagmus to the right. The third and fourth cervical vertebrae were prominent and tender. There was marked

atrophy of the entire musculature of both upper extremities, the left more than the right. There was reaction of degeneration in the intrinsic muscles of both hands. The hands were cold and cyanosed. The muscles of the back were weak. The abdominal reflexes were absent. There was spastic paraplegia with double Babinski reflex and double clonus. There was bladder incontinence. Marked trophic

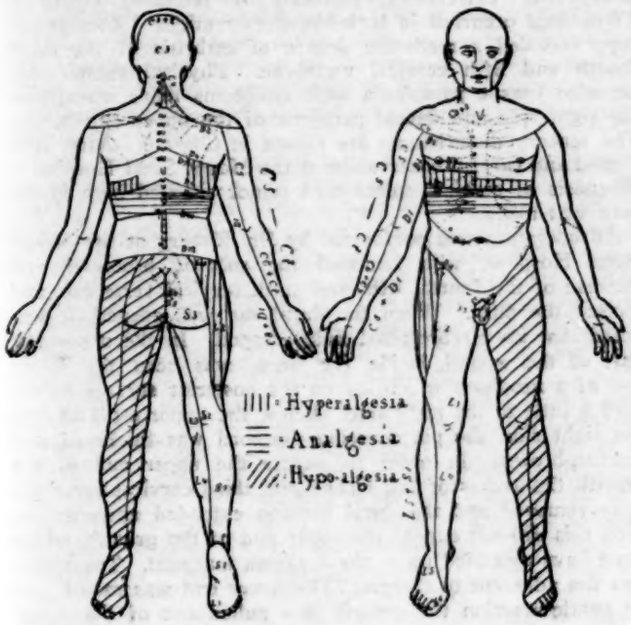

Chart 3.—Sensory disturbances in Case 5.

changes of the skin of both lower extremities had occurred. There was a decubitus ulcer over the sacrum. No disturbances of the thoracic and abdominal viscera were observed. Xanthochromia with massive coagulation was present. All the other laboratory examinations were negative. In view of the marked sensory and motor tract changes, as well as the rapidity of development of bilateral symptoms, a diagnosis of an intramedullary disturbance was made. Dr. Elsberg performed laminectomy of the third to the fifth cervical laminae. Evidence of diffuse intramedullary growth was presented.

CASE 4.—R. S., aged 22, single, no occupation, admitted Oct. 23, 1919, died Jan. 1, 1919, whose family history was negative and whose personal history showed some traumatism of an indefinite nature, dated the present illness four years prior to examination. There was a pain in the back radiating into both lower extremities. Three years later thermesthesia was evidenced by a painless burn. There was progressive weakness of both lower extremities, and paralysis of both lower extremities. There were bedsores and urinary incontinence. (The exact condition at this time is not known, as the patient was in a different hospital.) Operation was performed at a different hospital. The report of the operation was: Lower dorsal and lumbar cord distended by an intramedullary cyst which, on operation, showed yellow fluid.

On entrance to the Montefiore Home, the patient showed a complete paraplegia with loss of reflexes and loss of all sensation from the umbilicus downward. There was an enormous bedsore all over the buttocks, with profuse purulent discharge of a very bad odor. The patient died, January 1, from general sepsis.

CASE 5.—R. B., a woman, aged 37, married, admitted, May 12, 1916, left, Nov. 16, 1916 whose family and personal histories were negative, reported that the present illness began fifteen years prior with pain in the upper quadrant of the right abdomen. A diagnosis of gallstones was made, for which the patient was operated on without relief. Two years later an operation for appendicitis was performed, but no relief followed. She was next told that she had a femoral hernia and should be operated on. This time one of us was consulted. Evidence was found of level signs as well as motor tract interference affecting the right lower extremity. This disturbance, although not fully developed, yet showed evidence of a lateral tract involvement. The sensory disturbances are shown in Chart 3.

A diagnosis of an extramedullary spinal cord tumor on the right side of the cord and situated at the seventh dorsal segment was made.

Laminectomy for the removal of extramedullary tumors at the level of the seventh and eighth dorsal segments was performed at Mount Sinai Hospital, by Dr. Elsberg. Oct. 8, 1915. The arches of the fifth, sixth, seventh, eighth and ninth dorsal vertebrae were removed. The dura was incised. Considerable cerebrospinal fluid escaped. In front of the seventh and eighth dorsal roots on the right side were two small tumors connected by a fibrous band. Each tumor was the size of a hazelnut, and lay under but was not adherent to the posterior nerve root. The spinal cord was pushed backward to the left. The lower tumor was easily pulled out from underneath the eighth root, but the seventh dorsal root had to be divided before the upper tumor could be removed. The dura, muscles, fascia and skin were sutured. The tumors measured 1 by 1 cm. in size. The pathologic report was: fibroma.

Five months later the patient returned to the Montefiore Home with the history that for all this time she had felt comparatively free of all the symptoms. For the last week a complete spastic paraplegia developed with symptoms more marked on the right side than on the left. The sensory disturbances were more severe than before the operation; the level was higher than the site of the operation. Possibly another tumor higher up was developed. The patient refused another operation, and left the institution shortly afterward with the condition unchanged.

CASE 6.—G. W., a woman, aged 45, widow, admitted, Aug. 21, 1919, and at present still in the hospital, dated her illness from one year prior to her entrance to the Montefiore Home. The chronology of symptoms was: (1) pain in back of the right chest; (2) pain and burning sensation in the epigastrium; (3) increase of pain by coughing and sneezing; (4) weakness of the right lower extremity; (5) disturbance of gait, and (6) difficulty in starting the urinary stream.

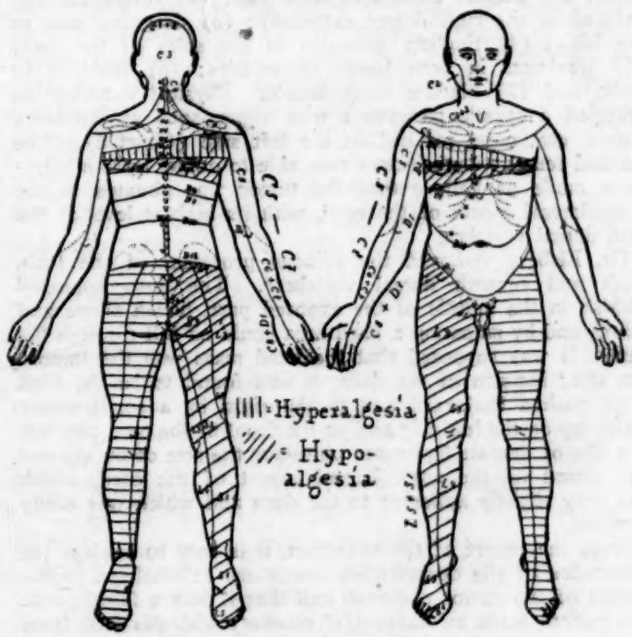

Chart 4.—Sensory disturbances in Case 6.

Examination revealed a spastic paraplegia with symptoms more marked on the right side. There was a right Babinski reflex, right ankle clonus, etc. Both abdominal and cremasteric reflexes were absent. Xanthochromia with massive coagulation was present.

Following the lumbar puncture, the Brown-Séquard syndrome became more pronounced, and the level signs more marked. The sensory disturbances are shown in Chart 4. A diagnosis was made of an extramedullary soft tumor situated on the right side of the cord with its highest level at the third dorsal segment.

Operation by Dr. Elsberg revealed an endothelioma on the right side of the cord between the third and fifth dorsal segments.

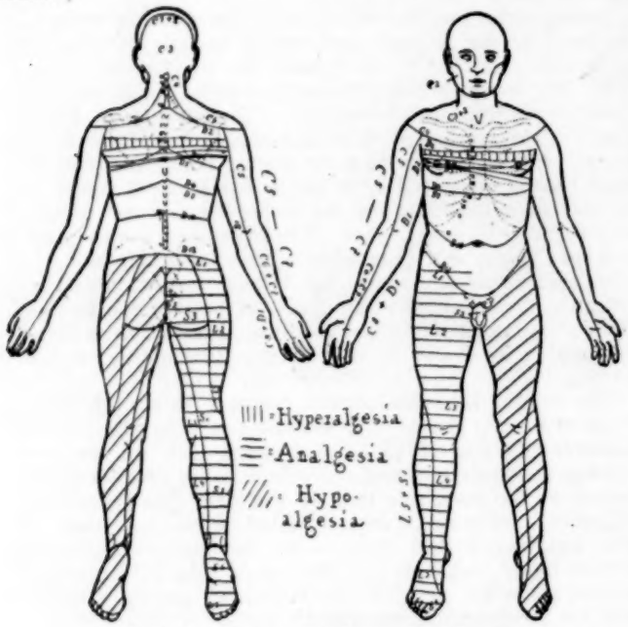

Chart 5.—Sensory disturbances in Case 7.

CASE 7.—G. G., aged 62, married, who was admitted, April 10, 1917, and died, Dec. 25, 1918, and whose family and personal histories were negative, gave this chronology of symptoms: (1) painful cramps in both legs; (2) severe burning pain along the right lower extremity; (3) dragging pain in the back; (4) tingling sensation in the soles of the feet; (5) weakness in both lower extremities; (6) inability to walk, and (7) bladder incontinence. Physical examination revealed a spastic paraplegia with signs, such as Babinski, clonus, etc., more marked on the left side (Chart 5). The marked sensory disturbances referable to dorsal tract involvement made us believe that the tumor was situated at the anterolateral aspect of the cord, with its highest level at the fifth dorsal vertebra.

Dr. Elsberg removed the spinous processes of the fifth, sixth and seventh dorsal vertebrae. The dura appeared whitish in the middle of the exposed part, bluish above and below, and by palpation a hard area could be felt through the dura. It was supposed that the hard mass was the tumor; but after incision of the dura, it was found to be the cord itself pushed backward and to the right by a small tumor which lay on the left side and on the front of the cord anterior to a slip of dentate ligament. A tumor the size of an almond was found on the anterolateral aspect of the cord, which was very slightly adherent to the dura and which was easily removed.

From the report of the operation, it is easy to explain the occurrence of the dorsal tract symptoms. Pathologic examination of the tumor demonstrated that it was a fibrolipoma. The patient made an uneventful recovery and was free from symptoms for about a year. At the end of two years the patient returned with these symptoms: (1) severe pains in both legs; (2) weakness of the lower extremities; (3) inability to walk; (4) severe girdle pains, and (5) urinary incontinence. There was complete spastic paraplegia with large decubitus ulcers. Gangrene of both lower extremities soon set in, and was followed by death from general sepsis. No necropsy was performed.

CASE 8.—L. B., a man, aged 24, single, tailor, admitted, June 15, 1915, discharged, May 1, 1919, much improved—practically well—whose family and personal histories were negative, had been ill fifteen months. The illness began with pain in the right shoulder radiating into the neck and right upper extremity. There were cramps in the right upper extremities, and pain in the left upper extremity. Paralysis of the right upper extremity was followed by paralysis of the left upper extremity. There was gradual paralysis of both lower extremities, preceded by retention of urine. Twitchings occurred in both lower extremities. Roentgenoscopy revealed a moderate degree of arthritis of the third, fourth and fifth cervical vertebrae. Physical examination revealed spastic paraplegia with symptoms more marked on the right side and flaccid paralysis of the upper extremities. The sensory disturbances are shown in Chart 6. After prolonged and careful observation at the Mount Sinai Hospital, a diagnosis of cervical spinal cord tumor situated high in the cord was made.

An operation was performed by Dr. Elsberg at the Mount Sinai Hospital, who removed the spinous processes and laminae of the fourth, fifth and sixth cervical vertebrae, and incised the dura. When the dural sac was opened, it was noted that no cerebrospinal fluid escaped. In the uppermost part of the wound, inside the dura, was seen the lower end of a neoplasm which lay on the posterior surface of the cord a little to the right side. Below the tumor especially on the right side, the pia covering the cord was thickened and reddish-brown. In order to expose the upper end of the growth the arches of the second and third cervical vertebrae were removed and the dural incision extended upward; but even this did not expose the upper end of the growth, which must have extended up to the foramen magnum. The tumor was not adherent to the pia. The lower end was raised, and by gentle traction the growth was pulled out of the spinal column and removed. From the length of the tumor, it had evidently extended up into the foramen magnum. The exposed cord was much flattened. The pathologic report was spindle cell sarcoma.

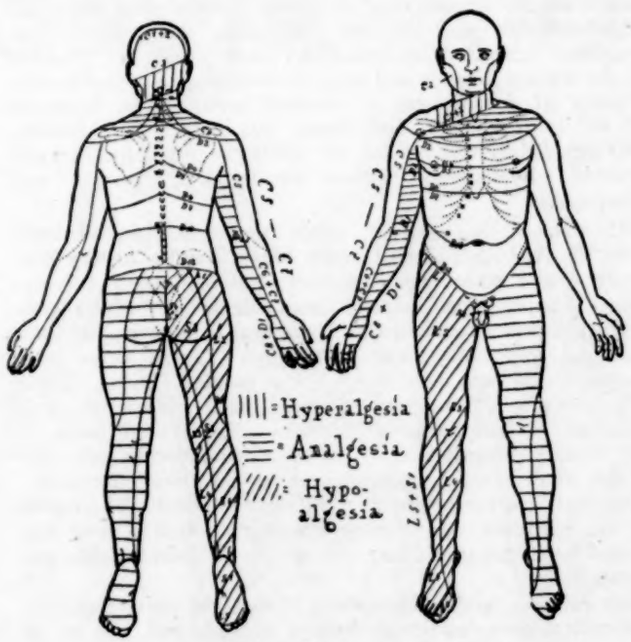

Chart 6.—Sensory disturbances in Case 8.

CASE 9.—E. G., a woman, aged 52, married, who entered, March 31, 1913, and died, June 6, 1914, and whose family and personal histories were negative, dated her present illness thirteen months prior to entrance. It began with severe bitemporal headaches. Eight months later there was weakness in the right arm. Ten months later there was weakness of the lower right extremity. Twelve months later there was weakness in the left upper extremity. There followed severe precordial pains, fainting spells, distention and swelling of the right lower extremity, and urinary incontinence.

The heart was enlarged to the left. There was right ankle clonus. The left plantar reflex consisted of an extension of the four outer toes, and flexion of the great toe. There was flaccid paralysis of the right upper extremity. There was no reaction of degeneration. The left upper extremity was weak, but not to such an extent as the right. There was marked hypertonia in the right lower extremity, with Babinski reflex. There were trophic changes of the skin in both lower extremities. The sensory changes are shown in Chart 7. A diagnosis of an intramedullary cervical tumor was made. Owing to the marked cardiac trouble, exploratory operative procedure was not undertaken.

At the necropsy, the brain and coverings were found to be negative.

Spinal Cord: The cervical cord was enlarged throughout its entire length to about twice its normal thickness, the enlargement being caused by the growth which occupied the posterior half of the cord and replaced the commissures, central canal part of the anterior horns, and the posterior horns and columns, more so toward the right side. The growth was grayish, soft and well defined from the surrounding structures, and there was no evidence of cavity formation. The growth extended throughout the entire cervical cord, but was more centrally located in the segments.

Histology: The mass of what corresponded to the new growth seen microscopically was merely broken down material and was structureless. Peripherally, especially posteriorly, a narrow strip was found containing peculiar darkly staining cells of varying sizes and shapes showing mitoses and frequently arranged in columns. Here and there were giant multinuclear cells. The pia was much thickened posteriorly and laterally, and the cells described also were found in the pia, which was intimately connected with the cord. The blood vessels were much sclerosed, and many ganglion cells of the anterior horns showed various stages of degeneration.

The diagnosis was gliosarcoma.

SIGNS POINTING TO SITE OF TUMOR

From our study of spinal cord tumors, we could deduce the following signs as a guide for the establishment of the actual site of the tumor:

1. *Valuable Signs.*—(*a*) Root signs; which consist of neuralgic pains with symptoms pointing to a distal distribution of an affected nerve.

(*b*) Zones of hyperesthesia immediately above the seat of the tumor and more marked at the homolateral site.

(*c*) Level abolition of skin and tendon reflexes.

(*d*) Deep spinal tenderness.

(*e*) Alteration in vibratory sense.

(*f*) No sweating below the level after injection.

(*g*) Ocular symptoms, such as lateral nystagmus and difference in the pupillary size as well as the palpebral fissure, which may all be present in high cervical tumors.

2. *Less Reliable.*—(*a*) Homolateral paralysis.

(*b*) Heterolateral distribution of pain and temperature sense, which reach their highest level only after considerable cord compression, late in the disease.

(*c*) This sensory loss, when complete, is usually three segments below the actual level of the tumor.

Greatest attention in tumors of the cord must be given to the area that marks the transition between the normal and the pathologic; this area merits a most careful study, as the nature and extent of the tumor can frequently be determined.

What has taken place below the level of the lesion where the compression is at all marked can only be surmised in the rarest of cases. In one case of multiple tumors of the cord, two affecting successive roots could by post facto study have been determined. These were two successive root zones involved according to the history of the case. As to the occurrence of xanthochromia, we have nothing to add to what has already been said. In our experience, the Froin reaction was of great diagnostic value, indicating interference with the free circulation of the cerebrospinal fluid.

As to the results of the operation: In two cases, the tumors recurred; in one case, multiple fibromas after five months of comparative well being; in the other case, a fibrolipoma after two years of comparative well being. In only one case, the intramedullary cyst, do we believe that the condition was possibly aggravated by the operation. In other cases, gratifying results were obtained. Of course, the best results were obtained in the soft tumors. In one case, the patient was up and about three weeks after operation, and within four months was able to return to work.

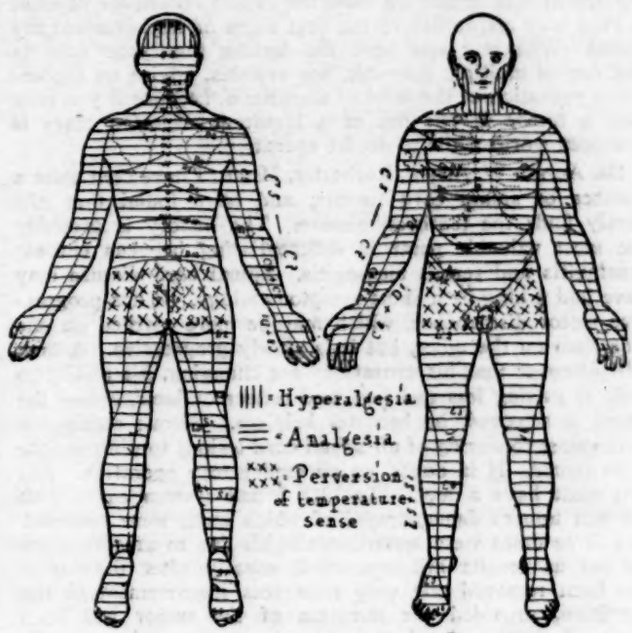

Chart 7.—Sensory disturbances in Case 9.

CONCLUSIONS

1. Progressive spinal cord diseases giving level signs and symptoms should be carefully observed and studied.

2. When no distinct level can be established, the effect of lumbar puncture should be carefully watched.

3. Xanthochromia of the spinal fluid in level spinal cord progressive affections usually means spinal cord tumors.

4. One should operate only when a level has been established. Probing above and below the suspected site, while useful in many cases, often fails.

5. Operations, frequently by their decompressive effects, help even in intramedullary tumors.

6. The possibility of a soft tumor in atypical level cord lesions must be borne in mind, as these are most frequently overlooked.

ABSTRACT OF DISCUSSION

DR. JULIUS GRINKER, Chicago: Dr. Climenko has fallen into the error of giving us only classical descriptions, though I am sure he must have had cases that did not comply with the classical types and their differentiation into the so-called extramyeline and intramyeline symptom complexes. I have seen cases of extramyeline tumor without pain, and I am sure every one has at least, not early, when we expect neuralgiform

pains. On the other hand, I have seen cases of intramedullary tumor in which there was pain. I am somewhat disappointed that Dr. Climenko did not tell us something about the syndrome of circumscribed serous meningitis. Circumscribed collections of serum in the soft membrane are capable of giving symptoms of spinal cord tumor, but there is a differential point in these cases worthy of emphasis, and that is, that the level of anesthesia is apt to vary from time to time. Dr. Climenko emphasized the point that after operation for spinal cord tumor we must not expect immediate results; a year may elapse before the first signs of improvement are noted. Whenever you have the feeling that your case is not one of multiple sclerosis, nor syphilis, advise an exploratory operation at the level of anesthesia, because if you only find a tumor in one out of a hundred suspected cases it has been worth while to do the operation.

DR. ALFRED W. ADSON, Rochester, Minn.: I have seen quite a number of spinal cord tumors, and have found that one rarely finds the textbook picture. The history is probably the most valuable point in differentiating between chronic meningitis and serous meningitis. Spinal cord disease may have had a long or a short symptomatology. It has progressive motor disturbance, which may be more marked on one side than on the other, but it is slowly progressive. A man will discover that his sensations are changing, his ability to walk is getting less and less, and sooner or later, unless the cause is removed, he becomes helpless. Serous meningitis is the most confusing of all spinal cord lesions to differentiate from tumor. If in doubt, do an exploratory operation. But you must have a level. In 1917 I had sixteen cases with thirteen tumors demonstrated of which eight were removed, and three cases were serous meningitis due to arachnoiditis. As far as results are concerned, usually after the tumor has been removed one very soon sees improvement in the condition, provided the duration of the tumor has been short. Patients with a history covering a year or less usually recover completely, provided the tumor has been removed intact. But when complete paralysis has existed for more than one year much improvement cannot be expected.

DR. ANDREW L. SKOOG, Kansas City, Mo.: I have never been able to differentiate the soft from the hard types of tumors. I doubt whether this can be done very often. The consistency of the tumor does not matter anyway, but it does matter whether it is a malignant tumor, and especially an intramedullary tumor, or a nonmalignant tumor. Most of the malignant tumors involving the medullary substance are inoperable from the standpoint of cure but the patient may be benefited. The extramedullary tumors should have a very high recovery rate. In view of the fact that we cannot always distinguish between intramedullary and extramedullary tumors, and malignant and nonmalignant tumors, it is necessary to operate in all these cases, and it is important to have a level. Undoubtedly a number of operations have been performed at too low a level. Sir William Gowers said: "When in doubt go even one or two levels higher." I have noticed xanthochromia in a number of cases of spinal cord tumors. It is an important part of the spinal cord tumor syndrome. However, xanthochromia can occur in other diseases.

DR. KARL A. MENNINGER, Topeka, Kan.: What changes were observed in the colloidal gold chlorid curves in spinal cord tumor?

DR. M. A. BLISS, St. Louis: The marked variability of symptoms in the solid tumors would lead one to believe that after a time the cord acquires a tolerance that enables it to resume its conductivity even in the case of a solid growth. We have demonstrated this more than once. Serous meningitis may involve a considerable length of the cord, therefore you may have a fairly well established level and evacuate a considerable accumulation of fluid, and then, even with a marked degree of recovery almost immediately after that evacuation, the condition recurs. Then, again, it may be associated with tumors in other places in the cord.

DR. GEORGE A. MOLEEN, Denver: Was your case one of psammoma or was it a case of multiple tumor which probably developed from a process originating in the pineal body from which such tumors nearly always orignate and with which they are closely associated?

DR. TOM A. WILLIAMS, Washington, D. C.: The diagnosis is usually very easy, but we try to avoid waiting until there is a well established syndrome. Early diagnosis in cases of extramedullary growth is based largely on root signs. Root signs depend to a great degree on the stem localization and on a very delicate examination of the sensibility, which can be confused very easily with the signs noted in the rather rare cases of gliosis leading to syringomyelia in the posterior root zone. The hypalgesia and the hypothermy in the arms noted by Dr. Climenko must be dependent on group symptoms alone because the thermal conductivity crosses the cord only from six to eight segments above its entry to the root, and an interruption of thermal conductivity, therefore, denotes a growth six to eight segments above the region where it seems to be interrupted, unless the growth is on one side interrupting only the thermal conductivity fibers, in which case there are certain to be other symptoms referable to that lateral column of the spinal cord. The difficulty of diagnosing the early case is very great. The cases we have seen are all late cases, and the difficulties presented are those arising from differential diagnosis between a tumor and serous meningitis. Severe mental symptoms are quite uncommon as the result merely of stasis in the spinal fluid. In a protracted case with spinal cord symptoms and delirium, we should think of serous meningitis. Improvement in these cases is an important point to consider. I would like to know why these improvements occur. We have all seen remarkable improvement in cases of trauma in which the functions were completely suspended and actual injury of the cord producing Brown-Séquard syndrome has occurred, recovery taking place after several months. So we must seek more satisfactory solution of the question.

DR. HYMAN CLIMENKO, New York: Dr. Grinker referred to spinal cord tumors in which pain is absent. We had no case without pain, therefore the point was not mentioned. The most difficult part of the examination is establishing a level, particularly when with a neurotic patient, and people of low intellectuality who cannot distinguish between hyperalgesia and hyperanalgesia; people who scream when suffering pain and keep on screaming when you get to an analgesic area. Therefore, you do not know whether you have passed a hyperanalgesic area or an area of normal sensibility. The establishment of a level is also difficult in tumors of the soft variety and in multiple sclerosis. But there is a differentiation between the two. The level of multiple sclerosis never remains permanent for any length of time. There is also a change of level in the soft tumor, but the change is not as marked as it might be in the other condition. As to the length of time necessary for recovery after operation: In our cases the time varied from four months to six years. In one case of the soft tumor variety, the patient was out of bed and comfortable within three weeks after the operation. Another point which should be emphasized is that pain after operation is usually greater than pain before operation. Of course we attempted to exclude syphilis, in all cases, but syphilis and spinal cord tumors may coexist. When there is a persistent level and there is no improvement in symptoms after specific treatment, operate in spite of the positive Wassermann. I agree with Dr. Adson that the history is very important. You do not always get a classical level or a classical picture, but it is the history of a slow and constant progression of symptoms that helps to make the diagnosis. As to distinguishing between the soft and hard tumors, so far as the results of operation are concerned it is not of much importance, but in diagnosis it is of great importance. It was the soft type that always gave us trouble in attempting to differentiate these cases from other spinal cord disease. We did not employ the colloidal gold test. The psammona patient has been entirely well since 1913. I do not believe the pineal gland was involved. From first reported the existence of xanthrochromia, not in connection with spinal cord tumors, but as related to inflammatory disease. I spoke of xanthrochromia as an important symptom in diagnosis, for whenever xanthrochromia coexists with a slowly progressive lesion of the spinal cord, a tumor should be suspected.

IPECAC SENSITIZATION AND BRONCHIAL ASTHMA

REPORT OF CASE

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NEW YORK

This case will be of interest on account of the unusually rare type of protein hypersensitization causing anaphylactic bronchial spasm. It also emphasizes the importance of careful history taking, with the view of searching for a possible clue in the etiology of the existing bronchial asthma.

REPORT OF CASE

J. M., a white man, aged 29, pharmacist for the last six years, referred by Dr. Robert Kahn, New York, twelve years before contracted an acute bronchitis, which persisted throughout the winter and early spring. With the return of the cold weather each year, he would be again subjected to the bronchitic symptoms of previous winters, consisting of occasional wheezing, dry cough and slight dyspnea, with intervals of relief from one to seven days. In the fall of 1919, bronchitis set in as usual. In December, the patient first complained of much running of the nose, followed by an irritating and distressing dry cough, and respiratory oppression. Soon after, he experienced for the first time a typical bronchial spasm. These symptoms would come on when he was working in the drug store, and especially when compounding powders. Past and family histories were negative.

Previous to coming under my observation, several nose and throat and general physical examinations were conducted by various specialists, who found him to be of excellent physique, and were unable to account for his present symptoms. Several roentgen-ray examinations of the nasal accessory sinuses revealed a rudimentary right frontal sinus. The sella turcica was normal. The nasal drippings plated shortly after their collection showed diphtheroid and Friedländer bacilli, the former predominating. Skin tests performed with the many drugs in powder form commonly employed during the recent influenza epidemic were negative, except pulvis ipecacuanhae et opii (Dover's powder), which gave positive reaction; the wheal measured 1 cm., and was surrounded by an intense erythema of 3 cm. diameter. Powdered opium, ipecac, and lactose—the constituents of Dover's powder—were then tried, giving a positive reaction only to ipecac, presenting a wheal of 1.5 cm. with an intense erythema of 3.5 cm. and reacting to a 1:100,000 dilution. Powdered ipecac was administered internally without any ill effects referable to the respiratory system. Inhalation, however, resulted in the immediate return of the usual nasal symptoms and respiratory oppression, ending in bronchial spasm.

I employed cutaneous tests against eighty-seven food, bacterial and epidermal proteins, obtaining positive reactions to cucumber, peas, tomatoes, chestnuts, grapefruit, herring and goose. A positive reaction constitutes a definite wheal with distinctly raised edges measuring not less than 0.5 cm. and appearing within a half hour. Sweet potatoes, beans, lima beans and strawberries gave doubtful reactions, being less than 0.5 cm. wheal and larger than the controls. The patient infrequently indulged in these types of food, and when doing so did not observe any untoward effects. A strict diet, excluding the foods giving positive and doubtful skin reactions was maintained for seven weeks without any improvement on the symptoms; during this period he pursued his usual vocation. These foods were therefore not considered as contributory etiologic factors to the existing asthma, but as sensitizations to be well borne in mind as possible sources of future trouble. Several weeks prior to going abroad, June 5, he gave up his occupation and complained only of his usual bronchitic symptoms.

COMMENT

1. We have a true anaphylactic bronchial asthma due to inhalation of powdered ipecac, engrafted on a recurrent seasonal bronchitis.

2. There were seven types of food with which there were positive cutaneous reactions having no bearing on the existing complaint.

3. This case demonstrates the importance of making inquiry into the occupation of asthmatics.

1864 Seventh Avenue.

LESSONS TAUGHT BY MEASURES FOR CONTROL OF VENEREAL DISEASES

SUGGESTIONS FOR THE FUTURE *

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Passed Assistant Surgeon
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A little more than two years ago, the Public Health Service actively entered on a program of cooperating with state boards of health to control the spread of venereal diseases, an important phase of public health work. Many papers by various health officers have discussed the measures now actually in operation in forty-seven states cooperating with the Public Health Service in this work, and therefore no attempt will be made to outline again the methods.

After trying to prevent the spread of gonorrhea and syphilis according to a prearranged plan, many lessons have been learned from experience, and as a result of this experience suggestions for the future have been impressed on those responsible for the inauguration and continuation of venereal disease control measures.

From a study of the work during the last two years, certain lessons may be briefly stated. Each of these separate lessons, however, includes many subdivisions, and the principal ones will be mentioned for the purpose of inviting consideration, comment and criticism.

1. It is absolutely essential that a three-phase program be carried on for the successful control of venereal diseases. The three phases of the work are: medical, legal and educational.

2. More attention must be paid to *preventing* infection.

3. There must be devised and inaugurated a comprehensive, constructive, practical plan for sex education so that the method can be applied in schools, beginning in the early grades and continuing through high school and college.

In discussing the details of these statements it is impossible to separate the discussion of the various phases of the work into clearly defined classifications, as each of the topics mentioned is intimately related to the general problem.

MEDICAL MEASURES

Every phase of public health work is primarily a medical question; but to carry out any plan for increasing health efficiency, much work of a nonmedical character must be done. In the case of venereal diseases we are dealing with a group of dangerous, communicable diseases, the causative organisms of which are known. The method of spread is well defined; and for syphilis, treatment is practically specific medica-

* Read before the Section on Preventive Medicine and Public Health at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

tion. Therefore, if it were possible to bring every infected person promptly under efficient treatment, continued until patients were cured, it would be possible entirely to eliminate these diseases in the course of a comparatively brief period. It is obvious, however, that such an accomplishment is impossible, and therefore the prevention of venereal disease must necessarily include measures other than medical.

LEGAL MEASURES

At the present time legal measures are of paramount importance. The term "legal measures" is used in a very comprehensive way, and includes many phases of the work now being undertaken by the Public Health Service and state boards of health for venereal disease control. Legal measures are of two separate types: legislative and administrative. The state legislatures and city councils should be asked to make appropriations for venereal disease control work; to declare it unlawful for infected persons to expose others to infection; to require the reporting of venereal diseases by physicians and others to the state health authorities; to require physicians to give venereal disease patients printed instructions setting forth proper procedure to avoid the spread of infection, and to prohibit the advertisement and sale of nostrums for the self-treatment of venereal diseases. The passage of such laws is only the first step in the program. The administration of the law, requiring that laws be observed, is the work that accomplishes results.

Almost all states now have some of these laws, but the enforcement of the laws is not usually carried on in an energetic manner. Much could be accomplished toward obtaining an accurate knowledge of the number of persons infected with venereal diseases and of the precautions that are being taken to prevent the spread of infection if the law requiring the reporting of venereal diseases was energetically enforced.

Many states are making an earnest effort to secure complete reports from physicians treating venereal diseases, while great laxity exists in other communities. This laxity and the indifference assumed by many physicians is a matter of much concern to health officers interested in preventing the spread of venereal diseases. If the state board of health has knowledge of the venereal disease rates, it becomes possible to interest officials responsible for appropriations by making known the actual facts. Reporting venereal diseases has not caused the objections predicted by opponents of laws requiring reporting. There is no evidence to show that infected persons neglect treatment because a report of their case is required. Reporting provides a stimulus for the patient to continue under treatment until danger of infection is over. Another useful result of reporting has been that in many instances the sources of infection become known; and by proper action such sources can be prevented from further spreading disease, and infected persons thus discovered can be required to undergo proper care and treatment.

Laws in regard to the control of conditions that favor the spread of venereal disease are essential and, as in the case of the law requiring the reporting of venereal diseases, the enforcement of the law is of vastly more importance than its passage.

This phase of venereal disease control work is the one that usually provokes much discussion, for the reason that many believe that to suppress conditions favorable to the spread of venereal diseases is a moral, economic and social problem rather than a problem for the health officer. A health official, however, must adopt measures to eliminate potential foci of disease. No progress would have been made in the control of yellow fever and malaria if the efforts of sanitarians had been limited to isolating and treating infected persons. When the breeding places of the carriers of these diseases were destroyed, control measures were successful.

This comparison is promptly answered with the statement that insect carriers of disease transmit malaria and yellow fever, but that only the human host spreads venereal disease. Correcting the environment of the human foci of venereal disease spread is avoiding disease at its source. It is not necessary to destroy the carriers of venereal disease; but they certainly should be kept under observation and their conduct regulated. All precautionary measures must fail unless adequate control regulations are consistently enforced.

Early in the development of routine venereal disease control work, practically all officials agreed that health officers had a definite responsibility for setting in motion the usual legal procedure of the state to suppress conditions that favor the spread of venereal infections. In the "Suggestions for State Board of Health Regulations for the Prevention of Venereal Diseases," issued March 29, 1918, Rule 8 reads as follows:

> Prostitution to be repressed.—Prostitution is hereby declared to be a prolific source of syphilis, gonorrhea and chancroid, and the repression of prostitution is declared to be a *public health measure.* All local and state health officers should, therefore, cooperate with the proper officials whose duty it is to enforce laws directed against prostitution, and otherwise to use every proper means for the repression of prostitution.

Repression of prostitution was thereby recognized primarily as a *public health measure,* and not as a social and moral problem in which the health officer had only an academic interest.

The legal program for venereal disease control must, however, give equal treatment to the two sexes. Laws enforced to control only infected females justly cause opposition if the male carrier of venereal disease is entirely neglected. It is not impossible to require that all infected persons conduct themselves so as to lessen the danger of the spread of their infection to others. This can often be accomplished by the physician in charge of cases explaining the necessity for care and requiring that certain precautions be observed. For this method of control to become effective, the indifference of many physicians must be overcome. Every physician has a very definite civic duty to perform in addition to his professional duty toward a patient infected with a dangerous communicable disease. No physician has met his responsibilities for the protection of the public health when he dismisses with a prescription a patient suffering with gonorrhea or syphilis. He must insist that such patients report frequently for continued observation and treatment. Unless he makes some effort to see that precautions are being observed to prevent others from acquiring the infection, he has failed to meet his responsibility as a citizen.

In fact, physicians should regard venereal disease control regulations as a special opportunity for the promotion of preventive medicine. Without these

regulations the conscientious physician is helpless when he knows that one of his patients is spreading venereal disease. He can only warn the patient that indulging in sex relations will delay successful treatment. He has no authority to direct the infected person to conduct himself so as not to menace his associates. Under existing laws in almost all states it is now possible for a physician to compel his patient to remain under treatment and to refrain from exposing others to infection, by citing the authority of the state board of health to isolate or quarantine infected persons who do not observe precautions to prevent the spread of their infection to others.

More attention must also be given to the control of travel of venereal disease patients. There is ample legal authority for this procedure, it being specifically stated in the Chamberlain-Kahn bill that one of the duties of the Division of Venereal Diseases of the Public Health Service was "to control and prevent the spread of these diseases in interstate traffic."

To carry out this duty the secretary of the treasury promulgated Amendment 7 to the interstate quarantine regulations, prohibiting the travel of persons infected with venereal diseases, except under certain restrictions that are described. Moreover, the state boards of health in forty-seven states have specifically agreed that "the travel of venereally infected persons within the state is to be controlled by state boards of health by definite regulations that will conform in general to the interstate regulations." Enforcement of the interstate and intrastate requirements for travel of infective patients will lessen the dangers of spread of gonorrhea and syphilis.

Interest in these phases of the work—reporting, control of cases, and regulating travel—will develop more effective measures for *preventing* the spread of venereal infections.

There is another part of the present program that requires much thought, definite agreement and appropriate action, and that is the treatment of prostitutes. In many cities it has been customary to apprehend women guilty of commercialized sex offenses, and punish them with a small fine or warn them to leave the city. Women so treated almost invariably return to their former avocation and continue to be sources from which venereal infections are acquired.

The remedy for this condition is to apply mental hygiene measures. All psychiatrists that have made studies of groups of prostitutes have shown by their reports that a very high percentage of such women are feebleminded or of abnormal mentality. If women practicing frequent promiscuous sex relations and spreading venereal infections are usually mentally deficient, might we not find that men who habitually and frequently indulge in sex relations, acquire venereal infections and spread the infection to others through careless and criminal negligence are also below par mentally? Male carriers of venereal infections should not be relieved of the acute symptoms and permitted to resume relations which tend to create additional foci of venereal infections just because they are men and not women. Mentally deficient men and women infected with venereal diseases should be committed to institutional care, and their physical rehabilitation accomplished. If their mental condition is such that they cannot safely be returned to society, they should be kept under supervision. The objection made to this procedure is that large appropriations would be required to provide for the care, treatment and rehabilitation of infected persons that are exposing others to infection. The amount it would cost to provide such institutional care is very much less than the loss now caused by venereal disease spread through neglecting the responsibility of caring for such persons.

EDUCATIONAL MEASURES

The educational measures contemplated by the present program are intended to reduce the problem in the future. It is illogical to continue indefinitely giving information to adults which will enable them to avoid infections, when the same result can best be accomplished by training children to live by rules of conduct that are designed to increase physical fitness and to enable them later on to control their exposure to infection.

The need for a well planned, constructive method of giving sex education is obvious to all who have given consideration to this subject. To discuss the question of sex education for children usually invites criticism; but the only way this question can be clarified is by discussion and the forming of definite conclusions.

There is a growing realization of the necessity for deciding on a plan that can be safely followed in the schools, whereby the next generation will be better prepared to meet the problems of sex relations than have adults of this age. The former policy of omission of all reference to reproduction of the species has proved to be fallacious and vicious. Parents should realize that they have not the choice of whether or not their children shall receive knowledge of sexual matters, but have only the choice of whether this knowledge shall come through proper channels or whether it shall be gained surreptitiously through information, often demoralizing, proffered by companions.

This question has been given a great deal of thought by educators, and it is believed that the consensus at present is that sex education should begin early and that the child should be led gradually through facts of reproduction in lower forms of life to an understanding of reproduction in human beings. Then would naturally follow instruction in regard to the nature of venereal diseases and methods of avoiding exposure to these dangerous communicable diseases.

Sex instruction in schools should never be given as a separate series of lectures or courses, but should be made a part of other studies. Sex knowledge should be part of physiology, biology, physical education, sociology, domestic sciences, even of history and literature, so that children will acquire the right attitude toward sex problems in an unconscious manner. There is certainly no short cut to knowledge in this field, and more harm than good will result from talks on sex matters given by poorly equipped teachers or lecturers as a special feature of class work.

It should be possible and practicable to devise a method of sex instruction whereby the ideas of the most advanced psychologists and educators could be presented by means of motion pictures. This visual method approaches as nearly as possible the natural way in which a child absorbs knowledge, and removes largely the difficult question of the qualification of a teacher. Material for the films for this purpose should, of course, be very carefully selected by a group of psychologists, educators, physicians and parents; and the entire series of films dealing with this subject should be reduced to scenario form and approved by authorities in the field of medicine and education before the preparation of the series is commenced.

This of necessity will take much time, and is not a part of the program that should be rushed to an unhappy result. The series should form a sequence of instruction from the time the child enters kindergarten until he leaves high school. Subsequent instruction in colleges and universities may be given by lectures and conferences, and after leaving college the educational facilities of the various state bureaus of venereal disease would be available to meet arising needs.

SUGGESTIONS FOR THE FUTURE

1. Closer cooperation should be developed between the state boards of health and the Public Health Service, and between state boards of health and local health officers to encourage a uniform method of venereal disease control throughout the United States. It adds much to the effectiveness of any public health work to adopt and put into practice a uniform procedure. Uniformity impresses the fact on those that come into contact with the work that definite knowledge is possessed by health authorities.

2. Health authorities should recognize the important part unofficial agencies may take in venereal disease control work if the activities of voluntary organizations are properly supervised.

The moral, social and economic phases of venereal disease control work can be materially advanced by organizations and citizens interested in these particular problems. The results so secured will reduce the burden of the control of venereal diseases now largely borne by health officials. This was the thought that prompted the inclusion in the agreement with state boards of health that they would "exert their efforts and influence for the organization of a state venereal disease committee that will be unofficial in character but a valuable cooperative agency for furthering the comprehensive plan for nation-wide venereal disease control." This plan has been utilized to some extent by certain state boards, but the full possibilities of these agencies have not been developed. Thought given to this particular question, followed by action, will greatly advance venereal disease control.

3. Progress will be materially advanced when the medical profession takes more interest in control of venereal diseases than it does at the present time. Members of the medical profession should naturally assume leadership in all plans for promoting public health, and there certainly is urgent need for every physician to renew and maintain his interest in all phases of the present program for venereal disease control. Every medical college should provide better facilities for preparing future physicians to have a greater knowledge of the venereal diseases. Instruction given in medical colleges should not be confined to clinical medicine, diagnosis and treatment, but should include instruction in sociological and psychologic conditions affecting the spread of venereal disease.

4. There is need for a wider development of follow-up work in connection with treating persons infected with venereal diseases. Follow-up staffs should be a part of the personnel of every venereal disease clinic, and of the office of every venereal disease specialist. The duties of such a staff are to keep track of patients needing further treatment; to determine sources of infection; to see that precautions to prevent the spread of infections are being observed by patients; to discover other cases among the associates and members of the family of infected persons, and to carry on sociological and psychologic observations that will be of value in limiting the further spread of venereal infections.

5. The question of equal treatment of both male and female infected persons must be placed on a scientific and equitable basis. Nothing can be gained by a controversy as to whether or not infected women are a greater menace to the community than are infected men. *All* persons of either sex infected with either gonorrhea or syphilis are a very definite menace to the health of the community in which they reside; and unless infected individuals can be depended on to observe precautions to prevent the spread of their infection to others, they should be placed under either modified or absolute quarantine restrictions.

This does not mean that every young man who has gonorrhea must be withdrawn from employment and sent to a hospital for treatment; but it does mean that the physician in charge of every venereal disease case should impress on his patient the absolute necessity of following certain rules of conduct which will render it unlikely that the infection will spread to others. If proper precautions are then not observed, the careless or criminal individual should be promptly reported by name to the state board of health. It then becomes the duty of the state health department to provide facilities for controlling such cases.

6. Careful and thoughtful consideration must be given by physicians, teachers, psychologists and intelligent parents to the question of deciding on the material to be used and the methods of applying instruction to questions of sex and venereal disease prevention.

CONCLUSION

There is no phase of public health work which is attended by greater difficulties and which presents so many various phases for consideration as does the problem of venereal disease control. Every one who has had actual experience in carrying on any part of the program has been greatly impressed with the tremendous scope and possibilities of the work and deeply realizes the necessity for not only continuing, but for greatly expanding the present plan of action.

It can be stated without qualification or doubt that the great mass of intelligent citizens of the United States are deeply interested in this problem and will give their unqualified support to health officers, physicians and others attempting to meet their responsibilities for preventing the spread of venereal diseases.

Varieties of Syphilis.—Recent observations have raised the question whether there are not at least two kinds of spirochete responsible for syphilitic manifestations. These may be roughly divided into a dermotropic and a neurotropic group. In the latter the cutaneous manifestations are often slight, and certain cases are on record where a syphilitic has transmitted the disease repeatedly in its neurotropic form. Conjugal syphilis also is said to be transmitted true to type. Levaditi and Marie find that experiment supports their clinical observations. The incubation period of the neurotropic virus is longer than that of the dermotropic variety, and the latter remains virulent for the monkey after repeated passages through rabbits, while the former loses its virulence after a single passage. Finally the inoculation of each variety of virus gives rise to an immunity which is specific for that variety. Against the existence of two distinct syphilitic spirochetes, it may be objected that intense cutaneous syphilis occasionally culminates in tabes dorsalis or in general paralysis, and Pagniez believes that the distinguishing characters of the neurotropic spirochete are due in part to the influence of the tissues which it infects.—*Med. Press*, Sept. 1, 1920

Clinical Notes, Suggestions, and New Instruments

STRONGYLOIDES INTESTINALIS INFESTATION

REPORT OF A CASE

LOUIS GINSBURG, B.S., M.D., JOHNSTOWN, PA.

A case of *Strongyloides intestinalis* infestation studied at the Johnstown City Hospital may be of sufficient importance and interest to report in detail.

Strongyloides intestinalis or *stercoralis* infestation occurs rarely in the northern part of the United States. It has been found near the Gulf of Mexico by Allen J. Smith and others. Its geographic distribution closely follows that of hookworm disease. In subtropical and tropical countries it is very common, notably in southern China and Italy.

In the development of this worm there are two generations. One is the parasitic generation in which the adult female, which reproduces by pathogenesis and is about 2.2 by 0.034 mm., in size, inhabits the upper portion of the small intestine. Its mouth has four lips; the esophagus is cylindric, and about one-third the length of the body. Neither the worm nor its ova appear in the stool unless an active diarrhea exists. The other is the free living generation. Ordinarily the ova hatch in the intestine, and when infection is severe the larvae can be found in the feces in large numbers. These are the "rhabditiform larvae," which are actively motile and measure about 0.5 by 0.02 mm. Outside the body they develop into a free, living, sexually differentiated generation. The young of this generation are the more slender "filariform larvae" that constitute the infective form. These larvae have smooth bodies and the mouth has four lips. The females are about 0.7 by 0.035 mm., the males 1 by 0.05 mm. The ova measure 0.07 by 0.045 mm. The eggs may appear after purgation, and then are strung out in a chain. The worms bore into the mucous membrane of the intestine. The eggs develop in the wall of the intestine and therefore only exceptionally appear in the feces. Infestation takes place by indigestion or by way of the skin. The chief symptom is diarrhea. The treatment is small doses of thymol long continued.

REPORT OF CASE

Mrs. R. T., married, aged 47, American born, white, housewife, was admitted to the Johnstown City Hospital, Dec. 25, 1919, with the diagnosis of bronchopneumonia. The patient had been ill about three weeks before admission to the hospital. The illness began with swelling of the feet, followed by headache. Later there developed swelling of the hands. There was a diarrhea from the very beginning. The temperature was about 101 or 102 F.; pulse, rapid and feeble; respirations, rapid and labored. The expression was anxious, and an annoying bronchial cough was present, accompanied by a red-streaked sputum. The patient "felt bad all over." The region of the gallbladder and duodenum was tender. The hygienic surroundings and sanitation were bad. The patient was native born, and had lived all her life in the western part of Pennsylvania. The stool was dark green and fluid. There were from six to twelve evacuations in a day. The urine was dark, scanty and foul smelling. A few days before death, defecation and urination became involuntary.

Physical Examination.—The patient, Jan. 16, 1920, was emaciated and of a sallow complexion. The skin had a peculiar dirty tan color, as if it had been accustomed to filth. The patient complained constantly of abdominal pain, and made strenuous straining efforts. Most of the time there was some mental aberration. The skin was cold to the touch.

Examination of the head was negative, except that the sclerae were yellow tinted. The teeth were in a deplorable condition, a few dirty roots and snags being all that were left. The pupils reacted to light and accommodation.

The chest was thin, the ribs being prominently visible. The respirations were about normal in frequency. Vocal fremitus was normal. The percussion note was a little hyperresonant anteriorly and posteriorly. On auscultation the respiratory murmur was coarse and expiration prolonged. There were no râles. No evidence of pneumonia was found.

The abdomen was scaphoid; the liver, enlarged, extending a hand's breadth below the costal margin. The hepatic surface appeared smooth. On auscultation, active intestinal movement was heard.

The arms were thin; the feet and lower part of the legs, markedly edematous.

The inguinal glands were palpable. On the buttocks and over the sacrum were bedsores.

All the tendon reflexes were tardy. The Babinski reflex was absent. There was a spontaneous ankle clonus on attempting to elicit the Babinski reflex.

The temperature was almost constantly subnormal, ranging between 95 and 97.6 F. Once it rose to 99.8. The pulse rate ranged between 76 and 150; respirations, from 16 to 36.

The stool, January 14, was greenish black; the consistency, liquid; the odor, foul. There was no blood, mucus or fermentation on gross inspection. Occult blood was present. Microscopically, no undigested meat fibers, red cells or starch were found. No ova were discovered. On low power microscopic examination, actively motile worms were seen. These larvae were smooth-bodied and cylindric, with pointed tail end. The mouth had four lips; the esophagus was short with a double dilatation and about one-third the length of the body; there were three small curved spicules at the base of the tail. These worms measured from 0.7 to 1 mm. in length, and 0.035 to 0.05 mm. in breadth.

January 15, a blood count revealed 4,560,000 erythrocytes, 8,320 leukocytes, and 75 per cent. hemoglobin. Differential count: polymorphonuclears, 95 per cent.; lymphocytes, 4 per cent.; mononuclears, 2 per cent.; transitionals, 1 per cent.; no eosinophilia.

Urinalysis, January 16, disclosed a urine of reddish color, foul odor, excessive turbidity, much sediment, acid reaction, specific gravity 1.020, cloud of albumin, and no sugar. Microscopically amorphous urates, and numerous hyaline and light granular casts were found. A specimen of sputum for examination could not be obtained.

Up to the time of the making of the laboratory diagnosis, the patient received only stimulating therapy. As soon as the laboratory findings were reported, dram doses of glycerin four times a day were administered, followed by thymol.

The patient died, January 19. She was conscious to the end, at which time she spat a bright red, frothy fluid, and complained of shortness of breath. A necropsy was refused.

SOLITARY INGUINAL HERNIA OF AN OVARY

JOSEPH M. CADWALLADER, M.D., SAN ANTONIO, TEXAS

Ovariocele of the inguinal type is a condition of infrequent occurrence, but of clinical interest and importance.

REPORT OF CASE

An unmarried woman, approximately 28 years of age, who consulted my colleague, Dr. A. A. Brown, because of a painful lump or enlargement in the left inguinal region, stated that the protuberance had been there for two years, but no longer, and that it had always been tender, had never subsided, and had never enlarged beyond the original size. There was no increase of pain with the menses. On digital examination the lump was clearly definable as a firm, tender, immovable body occupying the inguinal canal about midway between the deep abdominal ring and the symphysis pubis. It was absolutely irreducible. The young woman was physically below par, and inclined to be nervous.

The patient was admitted to the Baylor hospital, and operation performed, July 27. A short, straight incision was made over the mass, about three-quarters inch above, and parallel to, the iliopubic (Poupart's) ligament. The coverings were dissected away, and the sac, which showed decided inflammatory thickening, opened, disclosing a practically normal ovary. There was no trace of any other viscus in the sac or in the canal, nor was there a possibility of such a presence having ever existed, as the sac intimately encased the ovary. The inferior and posterior aspects of the organ were, through the exudate covering, firmly adherent to the round ligament and the inguinal canal. I increased the length of the incision, completely freed the ovary, the condition of which was very good, returned it to the abdominal cavity, and completed the procedure with the repair for the radical cure of inguinal hernia. The patient made a prompt recovery and has remained free from pain.

219 Moore Building.

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SATURDAY, OCTOBER 23, 1920

WHAT FASTING MEANS

The subject of complete and partial inanition has long been of interest alike to the physiologist and to the clinician. At one time the metabolism of starvation was believed to have a special significance as an indicator of the lowest maintenance requirement of the body. The building-up or anabolic processes of the organism are ordinarily assumed to be dependent on the ingestion of food. It is not easy to dissociate them from the simultaneously occurring disintegrative processes. Starvation, however, has been believed to furnish an uncomplicated opportunity to learn the extent and character of the catabolic or destructive changes on which continuation of life depends. This belief has furnished one of the reasons for the scientific investigation of inanition.

Lately, the phenomena of starvation have come into widespread prominence by the daily publication of items in the newspapers and other periodicals in regard to prolonged fasting. We venture to believe that not a few members of the medical profession have been interviewed on the questions which relate to this front-page "news item." What is the longest possible period of endurance of absolute withdrawal of food? Many persons are known to have lived without food for periods as long as fifty days without permanent detriment. In his elaborate monograph on inanition, Benedict [1] emphasized the importance of distinguishing between complete abstinence from both food and water, and abstinence from food alone. Experiments have shown that life cannot be sustained for any considerable period when both food and drink are withheld. Dogs have gone without food for 117 days, one individual exhibiting a loss of 63 per cent. in weight.[2] The "professional" fasters have frequently fasted more than thirty days under conditions of strictest scientific control, the latest carefully investigated "subject" being Levanzin, whose performance was under the supervision of the Boston nutrition laboratory of the Carnegie Institution of Washington.[3] In thirty-one days his body weight decreased from 60 kg. (132 pounds) to 47 kg. (103½ pounds). This affords an illustration of the extent of tissue loss which an adult may experience without restitution in the course of a month and without untoward outcome.

Starvation is an enforced condition in a variety of pathologic cases involving disturbances of the alimentary tract which preclude the ingestion of food. Usually, however, the deprivation of the latter is not complete, so that the accounts of the experiences of the persons involved are, in truth, records of only partial inanition. There are on record many authentic cases of persons who have been deprived of food (but not of drinking water) for twenty-five days, owing to accidents by which they have been imprisoned or otherwise prevented from securing nutriment. Physicians are familiar with the refusal of insane persons to take food or drink, and Desportes [4] has described a patient who lived two months, consuming only a little water. Prolonged fasting has often been hailed as a religious rite. The accounts of such fasts, Benedict writes, are so clouded by superstition and show such a lack of accurate observation that they are without value to science. They served only to maintain popular belief in the ability of some religious ascetics to subsist solely on the eucharist, and of some possessed of devils to abstain from food altogether. In addition to all these "categories" of starvation belong the instances of fasting in hypnotic sleep.[5]

Almost all cases of prolonged fasting indicate a tendency, before the lapse of many days, to avoid muscular effort. In general, the published accounts indicate a noticeable falling off in strength as the fasts progress. The metabolism reaches a relatively low plane, indicated not only in the decreased energy exchange but also in the low pulse rate. It is not uncommon for the latter to drop below 50 beats a minute when suitable opportunity for complete rest is afforded. Physiologic chemists have long recognized certain striking abnormalities of metabolism in starvation, foremost among which is, perhaps, the commonly observed ketosis. Beta-oxybutyric acid and related compounds have been estimated in amounts increasing in the urine with the progress of the fast, and the proportion of the acetone substances may at times be considerable. Accompanying them is an increased elimination of ammonia. Creatin also is a characteristic constituent of the urine of starvation. These facts emphasize the contention that the metabolism of starvation, involving as it does largely the breakdown of proteins and fats, is abnormal in character.

At the present moment a widespread interest is centered on the sensations of fasters. Psychic factors

1. Benedict, F. G.: The Influence of Inanition on Metabolism, Pub. 77, Carnegie Institution of Washington, Washington, D. C., 1907.
2. Howe, P. E.; Mattill, H. A., and Hawk, P. B.: Fasting Studies, VI. Distribution of Nitrogen During a Fast of One Hundred and Seventeen Days, J. Biol. Chem. **11**: 103, 1912.
3. Benedict, F. G.: Chemical and Physiological Studies of a Man Fasting Thirty-One Days, Proc. Nat. Acad. Sc. **1**: 228 (April) 1915; Pub. 203, Carnegie Institution of Washington.
4. Desportes: Du refus de manger chez les aliénés, Thèse de Paris, 1864.
5. Hoover, C. F., and Sollmann, Torald: J. Exper. Med. **2**: 403, 1897.

unquestionably tend to produce much uncertainty as to the symptoms attending the withdrawal of food. The reporters are rarely trained observers. In the popular mind, Carlson [6] writes, prolonged starvation is associated with great pain and distress, despite reliable reports to the contrary from many persons who have undertaken voluntary starvation. Such persons state, almost without exception, that after the first three or four days the sensation of hunger is no longer felt, or at least is not excessively painful or uncomfortable.

It is now well recognized that the feeling of hunger is accompanied by vigorous contractions of the stomach, if not actually dependent on them. Carlson and his collaborators have made careful observations on the continuance of these hunger contractions and found them to be undiminished during at least five days of fasting. Whether they persist a month or longer has never been ascertained. The sensation of hunger in the case of the starving physiologists was not lost during the first five days, though there was apparently some decrease in its intensity. Carlson insists that the absence of the sensation reported by so many fasters is due to a depression of the central nervous system. That starvation in man will ultimately lead to marked weakening and eventual absence of the sensation of hunger, owing to the depression of the central nervous system and asthenia of the gastric motor mechanism, is not denied. According to Carlson, however, it is inherently improbable that prolonged starvation in the case of healthy individuals should completely abolish the sensation of hunger and appetite while the organism is still in a fair state of integrity. The complete absence of this sensation may be regarded as due to pathologic complications. As observers agree that the hunger discomfort is greatest during the first few days of starvation, accounts of intense suffering from mere fasting where water is available must be accepted with reserve. Extreme emotion may, of course, alter the aspect of bodily sensations. "Voluntary starvation," says Carlson, "is in no sense a heroic act."

THE NATURE AND FUNCTION OF ADIPOSE TISSUE

From time to time, for many years, anatomists, embryologists and pathologists have been discovering and rediscovering the fact that fatty adipose tissue is not merely a common connective tissue loaded with stored simple fats, but, to a large extent, is structurally, developmentally and functionally an independent special tissue more after the order of the true ductless glands.[7] Neverthelelss, this view of the nature of fat tissue does not seem to become widespread, as witness the rediscoveries and the enthusiasm with which they are attended. Possibly the persistence of the older idea lies in the historical fact that this was the teaching of Virchow in his "Cellular Pathology," and hence entered into the basic principles of modern medicine. This teaching was unchallenged from 1853 until 1870, when Toldt first stated that the fatty tissue of mammals is a specific organ, entirely distinct from the connective tissues. He recognized that besides the usual fat depots, the cells of which are derived from the primitive fat organ of the early fetus and which form lobulated structures with an independent and characteristically glandular type of blood supply, there occur also irregular deposits of fat in connective tissues not possessing these features and returning to their original connective tissue structure and function when the fat is reabsorbed. Since that time there has been considerable discussion as to whether all the fat tissues represent simple connective tissue cells loaded with fat, as Virchow had believed, or whether all the fat tissue is of the specific glandular type; but it seems now that Toldt was correct in his view that both sorts of fatty tissue exist, the glandular type probably being the more abundant and important.

In certain localities the glandular character of the fatty tissue is particularly easy to discern. In man the fat about the kidneys and suprarenals, and also the masses lying above the clavicles and spreading widely in the neck, show especially the glandular character. This is most readily seen in emaciated persons, when the removal of the fat makes conspicuous the abundant blood supply of these exhausted fat organs, so that they may appear as distinctly glandular as the pancreas. Microscopically, such emaciated fat glands are seen to be composed of polygonal cells of typically glandular character, lying in a rich vascular network, and often closely resembling the parathyroid gland in appearance. In emaciated infants all the fat depots may exhibit this glandular character, and because of the abundant blood supply present a startling appearance when exposed at necropsy. Hibernating animals possess in their specialized fat organs quite the same peculiarities, only more strikingly developed.

Recently Cramer [8] of London has made some important observations concerning the functional properties of glandular adipose tissue, especially in those localities in which this specific structure is most conspicuously shown, and in the laboratory rodents in which the differentiation is particularly marked. He finds that the fat in these places differs from that of the subcutaneous and many other fat depots in its high content of lipoidal material, and, as has long been known, on the persistence with which the tissue holds to at least part of the fat during emaciation. When animals are fed sufficiently long on a diet with an abundance of protein, carbohydrate and olive oil, but lacking in vitamins, this adipose gland tissue loses its fat completely and comes to look like a typical gland with a

6. Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, University of Chicago Press, 1916, p. 125.

7. An excellent review of this subject is given by Chiari, Hans: Die Selbstständigkeit des Fettgewebes vom pathologisch-anatomischen Standpunkte, Tr. Chicago Path. Soc. 8: 65, 1910.

8. Cramer, W.: On Glandular Adipose Tissue and Its Relation to Other Endocrine Organs and to the Vitamine Problem, Brit. J. Exper. Path. 1: 184, 1920.

very rich blood supply. By contrast, the nonglandular type of adipose tissue reverts to connective tissue without any trace of glandular structure. As the death of animals on a vitamin-free diet seems to coincide with an exhaustion of the lipoidal contents of the glandular adipose tissue, the conclusion is drawn that this tissue is a storehouse for at least one of the vitamins, presumably the fat-soluble food accessory.

The coincidence that the suprarenal, with its lipoid-rich cortex, lies embedded in a mass of glandular adipose tissue full of lipoids, and that in vitamin starvation the lipoids disappear completely from the latter while the suprarenal cortex contains still a little lipoidal material, suggests that these structures are related. Other evidences of relationship between the glandular adipose tissue and the ductless glands are abundant, such as the lobular hypertrophy of the adipose tissue in cretinism, myxedema, adiposis dolorosa, and hypophysial deficiency (Fröhlich's syndrome). We therefore must recognize that there are at least two, and probably three types of adipose tissue, namely, ordinary connective tissue storing surplus simple fats, glandular adipose tissue storing lipoids with varying amounts of simple nutritive fats, and glandular adipose tissue with close functional relationship to the endocrine glands. Whether there are two types of glandular adipose tissue or only one is not yet altogether clear, but in any case the functional activity of adipose tissue must be recognized to be something more than simply as a storehouse of calories in the form of fat.

THE ORIGIN OF SOME MILK CONSTITUENTS

Milk contains certain highly characteristic substances not present elsewhere in the body. Most conspicuous among them are the phosphorized protein, casein, and the milk sugar, lactose. As these are not found circulating in the blood of the female under ordinary circumstances, it is logical to assume that they are literally manufactured in the active mammary glands. From both a qualitative and a quantitative point of view the question as to the precursors of the milk components is an important one. When it is recalled that many cows secrete more than a quart of milk every hour, day after day, and that the daily yield from the lactating human glands is not inconsiderable, the provision of suitable nutrient material to furnish the characteristic secretory output becomes a significant physiologic consideration. The food may be varied within fairly wide limits without altering essentially the composition or amount of milk secreted, provided sufficient nutrients are ingested. Only in the case of the milk fats are significant changes produced by the nature of the diet.

For the milk sugar, with its somewhat unique galactose component, the assumption that the circulating glucose of the blood forms the immediate forerunner seems now generally accepted. Porcher of Lyons long ago advocated this view. It has been fortified by the experiments of Kaufmann and Magne,[1] who compared blood samples, obtained at approximately the same moment from the jugular and from the mammary (abdominal subcutaneous) veins of milking cows, and have found that the concentration of glucose in the mammary blood is less than that in the jugular blood. They conclude that this difference is due to the utilization of glucose by the mammary glands as the precursor of lactose.

As Cary [2] has recently pointed out, the formation of milk in the mammary glands of lactating cows is so rapid that a determinable reduction of the precursors of milk constituents in the blood that have passed through the glands may reasonably be expected. This occurs, as Meigs [3] and his collaborators have shown, in the case of the phosphatid content of mammary blood, which is lower than that of the systemic (jugular) blood. One may therefore assume that blood phosphatids are the precursors of milk fat and the phosphorized compounds in milk.

And now the evidence for the precursors of the milk proteins has been secured by Cary,[2] in the same bureau of the Department of Agriculture. Whereas the amino-acid nitrogen of the blood and blood plasma obtained from the mammary vein in nonlactating cows is virtually the same as that obtained from the jugular vein, the content in the mammary vein blood of milking cows is decidedly lower than that circulating elsewhere. Cary asserts that the amino-acids thus picked up by the mammary gland from the plasma of the blood perfusing it are sufficient to account for the proteins of the milk and are undoubtedly the precursors of these milk constituents. Here again the physiologic rôle of circulating amino-acids, the "building stones" from which animal proteins are constructed, is brought into prominence.

COMMERCIALIZED PROPAGANDA IN THE GUISE OF SCIENCE

Under the title "Vaccines in Toxic Conditions," what purports to be a scientific contribution appears in the original department of the official organ of a state medical society.[4] The apparent purpose of the article is to overcome any hesitancy on the part of practitioners to use vaccines in toxic infectious conditions for fear that they might thereby cause harm. Such a thesis is interesting and might be important—if true. Two outstanding facts, however, give pause. First, the theory promulgated is contrary to the experience of those who have studied the subject; second, the man who writes

1. Kaufmann, M., and Magne, H.: Sur la consommation de glucose du sang par le tissu de la glande mammaire, Compt. rend. Acad. d. sc. **143**: 779, 1906.
2. Cary, C. A.: Amino-Acids of the Blood as the Precursors of Milk Proteins, J. Biol. Chem. **43**: 477 (Sept.) 1920.
3. Meigs, E. B.; Blatherwick, N. R., and Cary, C. A.: Contributions to the Physiology of Phosphorus and Calcium Metabolism as Related to Milk Secretion, J. Biol. Chem. **37**: 1 (Jan.) 1919.
4. Sherman, G. H.: Vaccines in Toxic Conditions, Illinois M. J. **38**: 314 (Oct.) 1920.

the article is in the business of making and selling vaccines! The former fact is a matter of fairly general knowledge among the better informed members of the medical profession; the latter fact is nowhere made evident in the article, which the reader might infer came from a disinterested investigator in the realms of immunology.

The article purports to prove that the special investigations carried on by its author show that there is no basis for the well-grounded fear that vaccines might be harmful to a patient suffering from toxic infectious conditions. Thus:

> From a closer study of these infective processes we find that this toxic condition is due to the rapid multiplication of the infecting organisms with the incidental production of ferments which the germs secrete to digest the food on which they live. These toxic ferments have a distinct destructive tendency on tissue cells, without any marked influence in stimulating tissue cells for antibody production. The crying need, however, in these extensive acute infections is rapid antibody formation to neutralize these germ-produced poisons and to eliminate the germs.

Now vaccines, we are informed, are not toxic and so stimulate the production of antibodies. In other words, the same organism that in the body is toxic and without marked antigenic properties becomes nontoxic and actively antigenic when converted into a vaccine. The details of the experiments of the "closer study" made by the author of this paper (and the manufacturer of vaccines) which give such definite and convincing results are not published. Possibly the article is a preliminary contribution, and future issues of the same publication will carry further articles on the same subject. The follow-up system is well recognized in the advertising world. At all events, this "closer study" has convinced the author of the article that:

> . . . even in extreme toxic conditions, in acute infections, bacterial vaccines may be employed without the least fear of doing any harm. In fact, we find that in extreme acute infections, bacterial vaccines not only give the best clinical results but they may also be given in larger doses at shorter intervals with less reactions than in minor or chronic infections and the earlier they are given the better the results.

Here again no details are given; there are no comparative results of the careful study of a series of cases. The sum and substance of this remarkable contribution to a scientific publication is to the effect (1) that the organism that in the body is toxic becomes nontoxic when introduced in vaccine form; (2) that the organism that in the body is but little antigenic becomes when introduced in vaccine form actively antigenic, and (3) that "in extreme acute infections" when the body is affected profoundly by the infectious agent and its products, the oftener and the more one injects of these very materials, the better the results!

And this astounding plea for the use of vaccines in conditions in which vaccines are generally held to be contraindicated, or even injurious, is made by one whose business is the manufacture of vaccines and selling them to the medical profession!

Current Comment

NEWSPAPER COMMENT ON THE PHYSIOLOGY OF STARVATION

It is interesting, amusing—and also discouraging—to read the ridiculous pap which is being fed to the public on medical matters in general, but especially on fasting in connection with the hunger strike. A writer, heralded as the "world's greatest" writer of editorials, has this to say:

> Lord Mayor MacSwiney, courageous man, slowly dying for the cause in which he believes, has struggled against death by starvation for sixty-eight days . . . he could not now live even if he consented to eat. . . . Because of malnutrition MacSwiney's memory is fading. In our public schools tens of thousands of badly nourished children are punished every day for "not remembering," when it is impossible for the half-starved brain to remember. MacSwiney suffers from scurvy, so much dreaded by the sailors on their long journeys in ancient days. Sailors were fed; MacSwiney is not. Scurvy attacks MacSwiney as it attacked the sailors, because vitamins are utterly lacking in the pure water that MacSwiney drinks as they were lacking in the imperfect diet of the sailors.

Thousands of readers have implicit confidence in what this writer says. His method of presentation, the cock-sureness, carries conviction to the uninformed. They consider him a fount and source of knowledge. What a pity!

THE GALLBLADDER AND BILIARY STASIS

An interesting sidelight has recently been thrown on the often arising question as to the desirability of performing cholecystectomy in cases of gallstone disease. Rous and McMaster[1] of the Rockefeller Institute have pointed out that even under conditions of stasis the gallbladder continues to exercise its usual function of concentrating the bile and incidentally adding mucus in quantity to it. This is quite different from the behavior of the bile ducts. Consequently, when an obstruction is produced below the entrance of the cystic duct, all of the extralobular biliary channels come at length to be filled with a thick, greenish black fluid. On the other hand, since the mucosa of the ducts themselves secretes little, if any, mucus and they do not facilitate concentration of their contents by absorption of water, in an obstructed duct system blocked off from the gallbladder, or connecting with one so changed as to be incapable of functioning, there regularly accumulates a limpid, watery fluid devoid of pigment and bile salts even when the animal is heavily jaundiced. This is the "white bile" of the surgeons. The passages soon become so distended with it that true bile ceases to enter them. Although it has been maintained that stagnation and inspissation of the bile do not give rise to the increased formation of cholesterol or to the precipitation of insoluble compounds of the bile pigments,[2] concentration is at least a concomitant and probably a contributory factor in the production of gallstones. As Rous and McMaster point out, even in

1. Rous, Peyton, and McMaster, P. D.: A, Vicious Activity of the Gall Bladder During Biliary Stasis; B, The Determining Factor in the Causation of White Stasis Bile, Proc. Soc. Exper. Biol. & Med. **17**: 159, 1920.
2. Kelly, A. O. J.: Osler's Modern Medicine **5**: 831.

uninfected and uninflamed bile passages an abnormal concentration and thickening of the bile, such as the gallbladder can effect, must act both to promote the formation of stones and to render obstruction by them more complete. The frequent rapid increase in size of stones partially obstructing the common duct is attributable to the concentration of stasis bile by the gallbladder. Absence of the bladder thus averts at least one phase of a possible cholelithiasis.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Health Officers to Hold Annual Meeting.—The annual conference of state, county and municipal health officers of California will be held in Chico, November 8-11, under the presidency of Dr. Ernest H. Pape, Berkeley.

Humane Treatment of Drug Addicts.—In an effort to find a humane plan for handling drug addicts in the police courts of San Francisco, Police Judge Timothy I. Fitzpatrick has issued a call for physicians and hospitals to volunteer to treat free of charge victims of the drug habit who fall into the police net.

University Builds Nurses' School.—Contract for the construction in San Francisco of the School of Nurses has been awarded by the comptroller of Stanford University. The new building, the site for which is on Clay between Buchanan and Webster streets, opposite Stanford University Hospital, will have accommodations for more than 200 pupil nurses.

ILLINOIS

Smallpox at Bloomington.—Orders for a general vaccination of schoolchildren in the Hawthorne School District of Bloomington were issued, October 4, following discovery of seven cases of smallpox among the schoolchildren. In addition two other cases were reported in the adult population of the district.

County Tuberculosis Sanatorium Proposed.—The voters of Lake County will be called on at the November election to decide whether or not a tax shall be levied for the establishment and maintenance of a tuberculosis sanatorium, according to a decision recently reached by the board of supervisors. The county already owns the Lake Breeze Sanatorium, but very little use has been made of the facilities there.

Society Honors Dr. Scott.—The Tri-City Medical Society gave a banquet, September 30, at the Masonic Temple, Granite City, in honor of Dr. Julien W. Scott, Venice, one of the oldest members of the society. Practically all members of the medical profession of the surrounding towns were present at the banquet, including Dr. Edward W. Fiegenbaum, Edwardsville, past president of the Illinois State Medical Association.

Chicago

Personal.—Dr. and Mrs. Casey A. Wood have gone to British Guiana for the winter. Dr. Wood plans to conduct some researches on the comparative anatomy of the eye, with special reference to birds.——Dr. and Mrs. Charles Adams and Dr. Charles Gordon Fuller have sailed for Honolulu.——Dr. John J. Killeen has returned to Chicago following an extensive tour of the hospitals in Europe.

Annual Meeting of Chicago Gynecological Society.—At the annual banquet and election of officers of the Chicago Gynecological Society, held October 15, at the Illinois Athletic Club, the following officers were elected: president, Arthur H. Curtis; vice presidents, W. C. Danforth and Carey Culbertson; treasurer, Charles B. Reed; editor, W. A. N. Dorland; pathologist, S. S. Schochet, and secretary, Joseph L. Baer. The annual award of the society in the form of a check for $100 for the best paper presented during the year was voted to Dr. S. S. Schochet for his very exceptional piece of original research presented before the society at its March meeting and entitled "The Physiology of Ovulation." The chairman of the committee on award, Dr. Emil Ries, in announcing the decision, laid emphasis on the permanent value of this article as a real contribution to the subject.

IOWA

Infantile Paralysis at Davenport.—Two cases of infantile paralysis were reported to the board of health of Davenport and the homes where the cases originated have been rigidly quarantined in an effort to avert a spread of the disease.

Medical Society Reorganized.—The old Upper Des Moines Medical Society, including physicians from Spirit Lake, Ruthven, Langdon, Spencer, Milford and Emmetsburg, recently reorganized and elected the following officers for the ensuing year: president, Dr. Edsil W. Bachman, Estherville; vice president, Dr. Quintus C. Fuller, Milford, and secretary, Dr. Harold L. Brereton, Emmetsburg.

KANSAS

Health Campaign Contest.—Dr. Charles H. Lerrigo, executive secretary of the Kansas State Tuberculosis Association, has announced plans for an editorial and news writing contest in furtherance of a fall and winter health campaign. The contest is open to all, including editors, publishers and special writers, and a bond of $100 will be awarded as the prize for the best health article. The prize also entitles the community or county in which the prize is won to a tuberculosis clinic, all the expenses of which, including nursing and medical service, will be borne by the state. The contest closes December 15.

KENTUCKY

New Health Officer for Scott County.—Dr. R. T. Lipscomb, Cincinnati, has been appointed to fill a vacancy as full-time health officer for Scott County to succeed Dr. Norris Caldwell, resigned.

New Operating Clinic Opens.—The operating clinic for eye, ear, nose and throat surgery of the Department of Public Health Nursing Association at Lexington, reopened, October 6, after extensive remodeling through the summer. New equipment which has been provided throughout will enable the clinic to give more efficient service to all applicants. Under a new policy to be adopted precautions will be taken to see that all patients who are able to pay for private treatment shall no longer be treated at the clinic, but will be referred to private practitioners.

MAINE

Health Association Publishes Journal.—The first number of the *Maine Public Health Association News* made its appearance in September. It contains news articles on health work all over the state, records of appointments of health workers, reports of conferences and plans for growth of the association, editorials, pictures and cartoons. It is circulated chiefly among members of the association and will be issued monthly.

Infantile Paralysis.—Up to October 11 twelve cases of infantile paralysis have been reported from ten towns to the state department of health since September 1, eight during September and four new cases in October. These are practically the first reports of the disease in Maine in 1920 and have put the health authorities on guard in view of the fact that the disease is now prevalent in alarming proportions in adjoining states. Three cases, one fatal, have been reported from Cranberry Isle, and one each from Eastport, Bangor, Waterville, Ellsworth, Rumford, Wiscasset, Winslow, Scarborough and Bowdoin. Reports show that the coast towns are most seriously affected, and it is possible that infantile paralysis was brought to Maine by summer visitors.

MARYLAND

Public Health Service Retains Fort McHenry.—The Public Health Service will retain Fort McHenry until completion of the new $1,000,000 hospital which will replace the old Marine Hospital. The Third Army Corps will take over Fort Howard as its headquarters until the Public Health Service no longer requires Fort McHenry, which is to be remodeled for use of the Army during the occupany by the Public Health Service, if practicable.

Personal.—Dr. Thomas R. Brown, associate professor of clinical medicine at the Johns Hopkins University, has returned to Baltimore after having spent a year in Europe as

director of the department of medical information for the League of Red Cross Societies, with headquarters in Geneva, Switzerland.——Dr. William Burgess Cornell, diagnostician of the New York State Department of Education, is in Baltimore undertaking a survey of mental deficiency in Maryland, under the direction of the National Committee for Mental Hygiene.

Final Transfer of Quarantine.—Baltimore city has accepted the offer of $176,000 for the transfer of Quarantine to the U. S. Public Health Service. It was understood that the federal government planned to establish a large immigration station on the grounds, but this was denied by officials of the Labor Department. The Public Health Service has been occupying the station for several years and has been caring for the city's smallpox patients. It will continue this service until other arrangements for the care of patients can be made by the health department.

New Health Program for Schools.—Announcement has been made by Dr. C. Hampson Jones, Commissioner of Health of Baltimore, of the reorganization of the work of medical inspection of schools, with a view to more satisfactory results. All of the health officers, school inspectors, school nurses and nurses from the communicable diseases division of the department are engaged in the work under the direction of Dr. John F. Hogan. The proper feeding of children and the instruction of parents as to the character and preparation of food is to be a feature of the work, in which Dr. E. V. McCollum of Johns Hopkins University will assist. The city has been divided into thirty-four sections, with a physician and a nurse in charge of each, the number of schools to each physician and nurse being determined by the number of children in the first four grades.

Increased Entrance Requirements at Johns Hopkins.—A report from the medical department of Johns Hopkins University states that beginning in September, 1921, at least two years of college work in chemistry will be required, of which one and one-third years must be devoted to inorganic and two thirds to organic chemistry. Each year's work should consist of three didactic periods per week and five or six hours of laboratory work. This is the minimum requirement and three full years in chemistry are advised, including lectures and demonstrations in elementary physical chemistry. After 1923, the three years' course will be required, consisting of 240 hours of class work and 500 hours of laboratory work. The former must include 60 hours in organic chemistry and a short course in physical chemistry. The latter must include one year's work in quantitative analysis and 120 hours in organic chemistry.

MASSACHUSETTS

Berkshire Association Elects Officers.—At the annual meeting of the North Berkshire Medical Association, held at Richmond Hotel, Springfield, September 22, the following officers were elected: president, Dr. George L. Curran; vice president, Dr. George H. Thompson, and treasurer, Dr. Esmond Sullivan, all of North Adams.

Leprosy in Boston.—The Boston City Health Department has discovered another case of leprosy in Joaquim de Costa, a 22 year old mill worker, who is being held at South Hampton Street Detention Hospital for transfer to Penikese Island. This is the first case coming to the attention of the Boston health authorities within the last six months and will make seventeen lepers under treatment at Penikese Island.

MICHIGAN

Summer Typhoid Below Normal.—There has been less typhoid fever in Detroit this summer than for any year since 1914; in all probability the rate is the lowest in the history of the city. In the four months ending September 30, 110 cases were reported.

Anthrax in Chassell.—A case of anthrax was recently discovered in a patient from Chassell at Hancock Public Hospital under the care of Dr. Will H. Dodge, Hancock. The case has resulted in health authorities of Houghton County issuing a warning against certain new shaving brushes to which the disease has been traced.

Honor to Dr. Lawbaugh.—A banquet was given by the Houghton County Medical Society, September 28, in honor of the fiftieth anniversary of the entry into the medical profession of Dr. Albert I. Lawbaugh, nestor of the upper peninsular medical fraternity. Dr. Joseph E. Scallon, Hancock, acted as toastmaster at the banquet which was attended by thirty-three members of the society and a host of other guests.

MINNESOTA

State Medical Association Elects Officers.—At the annual meeting of the Minnesota State Medical Association, held in Minneapolis, the following officers were elected: president, Dr. Charles Eugene Riggs, St. Paul; vice presidents, Drs. Arthur N. Collins, Duluth, Fred P. Strathern, St. Peter, and William A. Hunt, Northfield; secretary, Dr. Carl B. Drake, St. Paul, and treasurer, Dr. Frederick L. Beckley, St. Paul. Duluth has been selected for the next annual meeting, to be held August 24-26, 1921.

New Society Formed.—At the joint meeting of the members of the Park Region, Red River Valley and Clay-Becker medical societies held at Fergus Falls, September 29, the Northwestern Minnesota Medical Society was temporarily organized, with the following officers: president, Dr. Theodore Bratrud, Warren; vice president, Dr. Victor E. Verne, Moorhead, and secretary-treasurer, Dr. Willard L. Burnap, Fergus Falls. The first meeting of the new society will be held at Detroit, Minn., June, 1921.

MISSISSIPPI

Meeting of County Health Officers.—A conference of county health officers of Mississippi has been called to meet in Jackson, October 21-22, during the state fair.

New Professor of Hygiene.—Dr. Bowman L. Robinson of the University of Wisconsin has been appointed professor of hygiene in the University of Mississippi. Dr. Robinson was at the University of Mississippi during the session of 1916-1917 as professor of anatomy.

MISSOURI

Personal.—Dr. Charles W. Burrill, Kansas City, was elected surgeon-general of the Grand Army of the Republic, at its fifty-fourth annual encampment recently held in Indianapolis. ——Dr. Walter J. Hansen, St. Joseph, has been appointed assistant collaborating epidemiologist in the Public Health Service and field investigator for Buchanan County.

Caucus Selects Society Officers.—At the regular meeting of the St. Louis Medical Society, September 21, a resolution was unanimously adopted to hold a caucus of the members of the society for the purpose of nominating officers for the ensuing year. The caucus chose the following list to be presented for approval by the society: president, Dr. Emmet P. North; vice presidents, Drs. Charles S. Rehfeldt and Charles E. Hyndman, and secretary, Dr. John W. Stewart.

Survey of Water and Sewage Systems.—Representatives of the U. S. Public Health Service in cooperation with the state board of health have started investigations of water and sewage systems throughout the state with a view to improving sanitary conditions. The survey was initiated by the federal government to insure a safe water supply for railroads, and it is hoped that the state may be induced to appoint a sanitary engineer through whose efforts more uniform sanitary regulations may be obtained.

MONTANA

State Health Week Proposed.—The Butte Chamber of Commerce and Butte Rotary Club have tentatively announced the observation of Health Week throughout the state, beginning December 5. Officials of the state board of health and allied organizations are cooperating, and plans and particulars for the various cities will be determined on at the general meeting of the representatives to be held at Helena shortly.

Medical Society Aids Health Department Clinics.—Cascade County Medical Society has offered to support the work of the health department in cooperation with Drs. Aloysius Dolan and Frederick T. Foard by establishing a rotary service in the baby clinic and other clinics conducted by the health department. The medical society will assign physicians to take charge of the clinics and will determine the length of time to be served by each. Two other clinics will shortly be established in Great Falls, one for tuberculosis and the other for venereal diseases.

NEBRASKA

Lincoln Public Clinic Proves Successful.—The clinic for infants and children of preschool age established in Lincoln over two months ago has proved so successful that it is found necessary to add another hour to the work. The clinics will henceforth be held on Tuesdays and Fridays from 2 to 3 p. m.

NEW JERSEY

Osteopaths Seek Unrestricted Permit.—It has been reported that the New Jersey Osteopathic Society recently drafted a bill for introduction in the legislature by which osteopathic practitioners will be permitted to practice surgery or to prescribe narcotics and drugs without restriction.

County Society Meeting.—At the annual meeting of the Essex County Medical Society held at Newark, October 5, there was a lively discussion of the economic policies of the society, especially in connection with medical legislation. The following officers were elected for the ensuing year: president, Dr. Harrison S. Martland; vice president, Dr. Francis R. Haussling; secretary, Dr. Frank W. Pinneo, and treasurer, Dr. Robert H. Rogers.

NEW YORK

Health Notes.—Dr. Charles T. Graney has been appointed health officer of the consolidated health district of the town and village of Le Roy.—Dr. Frederick Carpenter has been appointed physician for the schools of Waverly.——Dr. Arthur M. Johnson has been appointed second deputy health officer, and Drs. Harold L. St. John and Harry Nievert, city physicians of Rochester.

Failure to Report Communicable Disease.—A recent comparison of records of deaths from communicable diseases with cases reported in New York State, outside of New York City, showed an average of 52 per cent. unreported to health authorities, the failures varying from 20 per cent. for diphtheria to 84 per cent. for puerperal septicemia. Steps are being taken by the state department of health to bring to the attention of the public and the physician the duty of the individual citizen in preventing the spread of infectious diseases by proper notification to health authorities.

State Hospital for Ex-Service Men.—Governor Smith, on September 29, signed the bill appropriating $3,000,000 for a hospital for the treatment of ex-soldiers suffering from nervous and mental diseases, to be erected on the site in Queens County intended for the Long Island State Hospital. The bill provides that an agreement may be entered into with the United States government for a term of not more than ten years whereby the United States is to equip and maintain the hospital exclusively for the treatment of discharged soldiers, sailors and marines from this state who became mentally defective from their service in the war. Dr. Thomas W. Salmon is the medical representative of the commission charged with construction of the hospital.

New York City

Harvey Society Lecture.—Prof. Jules Bordet, director of the Pasteur Institute of Brussels, will deliver the second Harvey Society Lecture at the New York Academy of Medicine, October 30, 1920, on the "Coagulation of the Blood."

New Health Department Budget.—The budget estimates for the Department of Health for 1921 total $8,821,027.23, as compared with $4,758,951 for 1920. Of this amount, $7,551,798 is to defray the expenses of the department and the remainder for new buildings.

Hospital Funds.—The trustees of the United Hospital Fund announce that nine additional hospitals have joined the cooperative movement for securing financial aid for hospitals. ——A committee of the New York Stock Exchange, which is soliciting funds for the Broad Street Hospital, in recognition of the valuable service rendered by the hospital after the recent explosion in the financial district, has secured a fund of $11,710 from 103 subscribers.

Personal.—Dr. Louis Fischer and family have returned from Europe.——Dr. Walter N. Thayer has been appointed warden of the Eastern New York State Reformatory, at Napanoch.——Dr. Charles H. Cole, deputy medical superintendent of Sea View Hospital, New York, has been appointed medical director of Pawling Sanatorium, the Rensselaer County Tuberculosis Hospital, at Wynaneskiee.——Dr. Julius Lewis Amster has been appointed consulting surgeon to the Penitentiary and Correctional Hospitals of New York City.

NORTH CAROLINA

District Medical Society Meetings.—At the annual session of the Tenth District Medical Society, held at Asheville, October 14, under the presidency of Dr. Clyde E. Cotton, Asheville, it was decided to hold three sessions annually hereafter, the next being scheduled at Canton, April, 1921. The following officers were elected for the ensuing year: president, Dr. Fred L. Siler, Franklin; vice presidents, Drs. Guy S. Kirby, Marion, Guy E. Dixon, Hendersonville, and Charles Z. Candler, Sylvia, and secretary, Dr. William J. Hunnicutt, Asheville.——At the annual meeting of the Seventh District Medical Society held in Lincolnton, October 4-5, the following officers were elected: president, Dr. John R. Gamble, Lincolnton; vice president, Dr. P. R. McFadyan, Concord, and secretary, Dr. Raymond Thompson, Charlotte. The next meeting of the society will be held at Concord, October, 1921.

NORTH DAKOTA

New Infirmary to Be Completed.—The state board of administration has decided to complete the new infirmary under construction at the State Tuberculosis Sanatorium, Dunseith, by appropriating $17,000 additional to furnish the necessary equipment. Dr. John G. Lamont is superintendent of the sanatorium.

OHIO

Medical Association to Hold Meeting.—The Northwestern Ohio Medical Association will meet at Tiffin, October 26, as the guest of the Seneca County Medical Society. Headquarters will be at the Masonic Temple.

Federation for Social Health.—At a conference attended by most of the important women's organizations of Ohio, the Ohio Women's Federation for Social Health was recently organized at Columbus. The activities of the federation will be closely coordinated with the state department of health, and direct contact will be maintained with the federal agencies.

Vaccination of Schoolchildren Compulsory.—Following the expulsion of several hundred children and five teachers for failure to be vaccinated, the Akron board of education adopted resolutions declaring vaccination compulsory for all pupils and teachers of the Perkins and Miller public schools; a number of smallpox cases have been found in the immediate neighborhood of the schools.

OKLAHOMA

Change in Health Officers.—Dr. Daniel S. Lee, Guymon, has been appointed health officer of Texas County to succeed Dr. David E. McCarty, resigned.——Dr. John C. Taylor, health officer of Rogers County, has tendered his resignation to the state department of health.

Public Health Conference.—A public health conference was held in Oklahoma City, October 12 and 13, under the joint auspices of the Oklahoma Tuberculosis Association, and the state department of health. Special consideration was given to the subject of industrial health service, workmen's compensation and accident prevention. A large tuberculosis exhibit and special displays of health information and literature were a feature of the conference. Dr. Mazyck P. Ravenel, professor of preventive medicine in the University of Missouri, delivered the principal address on endemic disease.

OREGON

Results of Tuberculosis Survey.—A special tuberculosis survey was recently conducted under the auspices of the Oregon Tuberculosis Association covering the eastern part of the state. Statistics for the counties of Union, Baker and Wallowa show a total of 134 cases, seventy-two of which were active or advanced, and forty-eight in the incipient stage; twenty-six were in children under 16 years. The survey was made in order to interest the citizens of eastern Oregon in a special tuberculosis hospital, the need of which is becoming quite apparent.

PENNSYLVANIA

Typhoid Fever at Bentleyville.—A serious epidemic of typhoid fever, totaling approximately 100 cases, has been reported from Bentleyville. The state department of health has sent physicians and nurses to the town to cope with the situation. Twenty-seven cases have been traced to water from one single spring.

Soldiers' Memorial Hospital Under Way.—Construction work has been begun on a new building at the Butler County General Hospital, Butler. A fund of $500,000 was provided for the purpose. When the new addition is completed the hospital will have a capacity of 200 beds, and the institution will then be named the "Butler County Soldiers' Memorial Hospital."

Hospital Notes.—Ground has been broken for an addition to the McKeesport Hospital as part of the improvements for

which $300,000 was raised by popular subscription a year ago. The addition will consist of a 100 bed private pavilion and will bring the capacity of the hospital to 350 beds.——The Shockey site, comprising 4 acres on the eastern border of Waynesboro on the state highway, has been chosen by the board of managers for the new hospital, plans for the building of which will shortly be announced. The sum of $327,000 has been raised for the building fund and endowment.

Philadelphia

College Buys Property.—The four-story store and dwelling property, 1029 Walnut Street, including a three-story building in the rear on Moravian Street, has been purchased by the Jefferson Medical College.

Nutrition Clinic Opens.—A nutrition clinic was opened at the Shippen School, Nineteenth and Cherry streets, October 13, by the Philadelphia Health Council and Tuberculosis Committee in cooperation with the White Williams Foundation. This is the first of four clinics to be opened in the city by the council this month.

SOUTH CAROLINA

Hospital Appointment.—Dr. Mary R. Fleming has been appointed director of the clinical diagnosis laboratory and pathologic and roentgen-ray technician in St. Mary's Hospital, Anderson.

School Medical Inspections Mandatory.—According to a decision of the state attorney-general, sent to Dr. James A. Hayne, state health officer, schoolchildren must submit to physical examination during the first month of attendance to be legally entitled to attend the public schools of South Carolina.

TEXAS

Welfare Council Increases Membership.—The Dallas Tuberculosis Association and Cumberland Hill Nursery have joined the Welfare Council of Texas, an action which makes it possible to present to the people of Dallas a budget covering all the important charities in one campaign.

New Health Officials.—The city commission of Dallas has appointed Dr. William L. Robinson, Austin, as city visiting physician to attend persons who are unable to pay a private physician. The physician's headquarters will be at the City Hospital.——Dr. Orvel A. Suttle, Mount Vernon, Ill., has been appointed director of the bureau of venereal diseases of the state department of health.

WEST VIRGINIA

Miners' Hospital Planned for Charlestown.—Plans for the erection of a $200,000 hospital at Charlestown, for the exclusive use of coal miners, have been announced by officials of the United Mine Workers of America. The hospital project was authorized at a recent convention of miners held in Charlestown.

State Will Distribute Diphtheria Antitoxin.—The state department of health has made arrangements for the free distribution of diphtheria antitoxin to physicians for use in the treatment of and immunization against diphtheria. The district health commissioners and county health boards will cooperate with the state health authorities in the distribution of the antitoxin.

CANADA

Personal.—Dr. Dugald Christie, who for the last thirty-eight years has been a medical missionary in Mukden, Manchuria, is now in Toronto.——Dr. W. T. Grenfell of the Labrador mission to Deep Sea Fishermen, gave a lantern demonstration before the Academy of Medicine, Toronto, October 13. He was accompanied by Dr. Paden, one of his assistants.

Clinical Congress of Surgeons.—At the Clinical Congress of the American College of Surgeons, which opened in Montreal, October 11, Sir Berkeley Moynihan, for the consulting surgeons in Great Britain during the World War, presented a mace to the American College of Surgeons. The gift was accepted for the college by Dr. George E. Armstrong, Montreal, president of the congress. In the report on hospital standardization, approval is given to six hospitals in Quebec, five being in Montreal; to two in Ontario, both in Toronto; five in British Columbia; three in Manitoba; two in Alberta and Saskatchewan, and one in Nova Scotia.

University News.—Sir Arthur Currie, principal of McGill University, inaugurated a campaign for $5,000,000 for McGill in an address to a meeting of McGill graduates and others in Toronto, October 14. He will speak in London, Detroit and Chicago later.——In an address before the educational conference in connection with the inauguration of President M. L. Murton of the University of Michigan Sir Robert Falconer, president of the University of Toronto, referred to the mediating influence of the world's universities as one of the chief hopes for the peace of the world.——The registration of students in medicine at the University of Toronto will probably be considerably reduced in numbers, through new regulations governing the standards of entrance for the session 1921-1922. Priority is to be given to returned soldiers who have met the entrance requirements and next to those holding certificates of higher value than the junior matriculation. Preference will also be given to citizens of Ontario. Senior matriculation will shortly be required for registration. ——The government of the province of Quebec has granted $1,000,000 as a subscription to the University of Laval, Quebec City; another million had already been collected by private subscription.

GENERAL

College of Surgeons Elects Officers.—At the annual meeting of the American College of Surgeons, held at Montreal, October 11-15, under the presidency of Dr. George E. Armstrong, Montreal, the following were elected to office: president, Dr. John B. Deaver, Philadelphia, and vice presidents, Drs. Harvey G. Mudd, St. Louis, and Charles E. Sawyer, Marion, Ohio. The secretary and treasurer were reelected.

Hospital Association Holds Meeting.—At the annual meeting of the American Hospital Association, held in Montreal, October 4-8, the following officers were elected: president, Dr. Louis B. Baldwin, Minneapolis; president elect, Dr. George O'Hanlon, New York; vice presidents. Dr. Malcolm T. MacEachern, Vancouver, B. C., Mr. S. G. Davidson, Memphis, and Miss Alice M. Gaggs, Louisville, Ky.; secretary, Dr. A. R. Warner, Chicago, and treasurer, Mr. Asa Bacon, Chicago.

Gift to California Institute of Technology.—This institution of Pasadena, Calif., until April of this year known as the Throop College of Technology, has begun its present session with an attendance of 400 students and under the administration of a faculty committee. Dr. J. A. B. Shearer, president of the institute, resigned in September because of ill health. The institute has just received from Dr. Norman Bridge an additional gift of $100,000. Some years ago he gave the institute $150,000. The entire sum is being applied toward the construction of the Norman Bridge Physical Laboratory.

Marine Hospital for Middle West.—The U. S. Public Health Service opened its Marine Hospital in Chicago, September 30, as a general clearing house for soldiers and sailors residing in the states comprising the eighth district, namely, Illinois, Wisconsin and Michigan, who are suffering from nervous and mental diseases. Dr. L. M. Wilbor, surgeon, will be in charge. Any member of the military or naval forces of the United States of these states who needs such attention may be sent to the hospital for observation and diagnosis and will receive the benefit of all the facilities for diagnosis afforded by the neuropsychiatric centers of Chicago. The hospital, which will start with 130 beds, has an allowance of $85,000 for remodeling and other purposes.

LATIN AMERICA

Site Donated for Home of Academia de Medicina.—Our Buenos Aires exchanges record that Drs. R. and M. Herrera Vegas have recently presented the Academia de medicina with a central plot of ground on which it can proceed to build its own home.

Cuban Physician Comes to United States.—Dr. Carlos Desvernine, a well known Cuban physician, has just left for the United States and Europe to submit his preparation for the treatment of tuberculosis to the Rockefeller Institute and the Pasteur Institute. Dr. Desvernine has designed an apparatus called the stethograph.

Personal.—Dr. A. Pacifico Pereira has resigned his charge of the *Gazeta Medica da Bahia*, on account of poor health, and Prof. Clementino Fraga becomes director of this well known medical monthly, now in its fifty-first year.——Dr. Calderón Muñóz has returned to Costa Rica from Belgium. ——Dr. Amable Jones, professor of psychiatry at Buenos Aires, has been elected governor of the province of San Juan by the radical party.

Reenstierna's Mission to Brazil.—The Swedish dermatologist, Dr. J. Reenstierna, whose arrival in Brazil has already

been chronicled, is on an official mission for the study of leprosy. At the September 2 meeting of the Academia nacional de medicina he described his own extensive research on leprosy, speaking in Portuguese. His research was interrupted by the war as he was unable to obtain monkeys further for the work which he had begun in 1912.

FOREIGN

Plague at Black Sea Port.—Because of the prevalence of bubonic plague, the port of Batum, on the Black Sea, has been closed to all trade.

Another Medical Mayor.—Dr. A. Calama Sanz of Salamanca, Spain, director of the *Regeneración médica*, has been appointed alcalde of the city.

Society of Medical Radiology in the Northland.—This society was founded at Christiania in 1919, and the next meeting is to be held at Copenhagen in the summer of 1921. The secretary of the Danish group is Dr. C. I. Baastrup, St. Kongensgade 68, Copenhagen.

Centennial of Cod Liver Oil.—Our French exchanges state that it was in 1822 that cod liver oil was officially adopted into the materia medica, but it had been taken as a household remedy for rheumatism, rickets and sciatica for some time before that in Holland and England.

American Physicians Elected Members of Swedish Medical Association.—At the meeting of the Swedish Medical Association, May 18, five American foreign associate members were elected, namely, Drs. Ludvig Hektoen and Peter Bassoe, Chicago; Dr. Lewellys F. Barker, Baltimore, and Drs. Warfield T. Longcope and Rufus Cole, New York.

Monument to Magnan.—The friends and pupils of the late Dr. V. Magnan, for so many years chief of the admittance service at the Sainte-Anne asylum near Paris, are planning to erect a memorial to him. A large committee of alienists and others have the matter in charge, and P. Masson, the publisher, 120 Saint-Germain, is now receiving subscriptions.

International Office for Physical Hygiene.—At the close of the recent Congress for Physiotherapy, held in Antwerp at about the same time as the Olympian games, a group of physicians, impressed with the value of physical agents in preventive hygiene and the advantages of early training in physical exercise, organized the Bureau International de l'hygiène physique to promote in every way out-of-door life, sports and exercise of all kinds. The international board includes Dr. Gommaerts of Ghent, as president; Dr. Tissié of France; Dr. Cyriax of England; Dr. van Breemen of Holland, and Dr. R. Ledent, rue Sainte Marie 24, Liége, as secretary. Physicians everywhere are invited to join the association.

The Italian Institute for Research at High Altitudes.—The Istituto Angelo Mosso is on Monte Rosa in northern Italy at a height of 2,901 meters, over 8,703 feet. It is equipped for research on physiology, physiopathology, zoology, botany, terrestrial chemistry and physics. There is an annex on one of the peaks, 4,561 meters, over 13,683 feet high, for those who wish to study the effects of high altitudes. Different governments contribute to the support of this scientific institution, and each is entitled to one or more posts among the research workers. There are accommodations for twenty at a time. Prof. A. Aggazzotti of Turin is in charge this year. The institution opened July 20, and among the workers this year was E. F. Adolph from Harvard, who is said to have been studying the relations between the oxygen of the blood and the acidity of the urine under varying exercise and varying diets at high altitudes. The *Riforma Medica* states that more contributions would be welcomed. A single payment of 10,000 lire gives title to one post.

Deaths in Other Countries

Dr. **E. Garciadiego,** professor of obstetrics at the School of Medicine and Pharmacy of Guadalajara, Mexico.——Dr. **Manuel C. Barrios,** professor of physiology and then of legal medicine at the University of Lima, Peru. While a member of the national cabinet he created and organized the public health service and founded the Academia Nacional de Medicina and its journal, the *Monitor Médico*. His death occurred while on his way to New York.——Dr. **J. P. Morat,** formerly professor of physiology at the University of Lyons, aged 75.——Dr. **E. Palacio** of Argentina who has been residing at Berne since 1914.——Dr. **M. de Souza Avides** of Porto, Portugal, formerly of Rio de Janeiro.——Dr. **F. Hofmann,** formerly professor of hygiene at the University of Leipzig, aged 77.

Government Services

Legislation for the Improvement of the Army Medical Corps

Among important legislation for the improvement of the Army Medical Corps to be presented at the coming session of Congress is a proposed measure to increase the enlisted strength of the Medical Corps. Under the army reorganization bill passed in June, the enlisted strength is limited to approximately 5 per cent. of the total strength of the Army. As this number is entirely insufficient to meet the ordinary needs of the Army in maintaining the necessary care of the sick, the Surgeon General will request Congress to increase the enlistment strength to 6 per cent. of the total strength of the Army. The measure providing for the retirement of members of the Army Nurse Corps after twenty years of service, which passed the Senate at the last session but failed in the House of Representatives, will again be submitted.

Control of Venereal Diseases in the Army

Some interesting facts regarding the control of venereal diseases are disclosed in a report on the venereal disease situation in the American forces in Germany. In the early period of occupation of German territory, when antifraternization orders were enforced among the troops, the weekly admission rate for all venereal diseases varied from 8 to 76 per thousand per annum. Later, after there had been a relaxation of the antifraternization orders, the weekly admission rates rose, ranging between 156 and 422. When the rate became alarmingly high in October, 1919, a vagrancy court was established by the German authorities, and 2,033 women were arrested, of whom 35 per cent. were found diseased. In the next period, including the year 1920, soldiers who contracted venereal diseases were prosecuted before courts martial. This resulted in a reduction of the incidence, but when a "good conduct" system was inaugurated, by which soldiers were permitted to leave camp and to remain away overnight, the admission rate immediately began to rise again, and reached as high as 200, an increase of practically 100 per cent. in three months.

MEDICAL OFFICERS, UNITED STATES NAVY, RELIEVED FROM ACTIVE DUTY

INDIANA
Wheatland—Wood, R. S.

LOUISIANA
Ansley—McBride, D. C.

NEW YORK
Amsterdam—Sarno, A. H.

NORTH CAROLINA
Raleigh—Morgan, W. A.

VIRGINIA
South Boston—Armstrong, T. E.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list L. signifies lieutenant; C., captain; M., major; L. C., lieutenant colonel, and Col., colonel.

CALIFORNIA
Huntington Beach — McKillop, J. E. (M.)

COLORADO
Victor—Thomas, H. G. (M.)

DISTRICT OF COLUMBIA
Washington—Bryson, H. J. (M.)
Miller, W. C. (L.)

ILLINOIS
Chicago—Gallagher, M. L. (C.)
Peterson, P. G. (L.)
Cropsey—DeMoss, G. O. (C.)

INDIANA
LaFayette—Schultz, A. F. (C.)

IOWA
Cherokee—Howard, W. A. (M.)
Keokuk—Narrley, G. R. (L.)

MARYLAND
Baltimore—Hoffman, C. W. (M.)
May, W. T. (C.)

MICHIGAN
Detroit—Harm, W. B. (C.)

MINNESOTA
St. Peter—Covey, H. W. (L.)

MISSOURI
Denver—Long, L. H. (L.)
Kansas City — Brown, A. C. F. (L.)
Cary, W. E. (C.)
St. Louis—Sippy, A. H. (C.)

MONTANA
Great Falls—David, S. D. (C.)

NEW JERSEY
Atlantic City—Surran, C. (C.)
Summit—Thurston, J. A. (C.)

OREGON
Portland—Benyas, N. M. (M.)

PENNSYLVANIA
Pittsburgh—Anderson, J. K. (L.)

SOUTH DAKOTA
Platte—Anderson, E. T. (C.)

TEXAS
Dew—Lowry, D. L. (L.)
Otto—Dix, I. A. (C.)
San Antonio—Burnet, E. J. (C.)
White Wright — Bauguss, J. B. (L.)

WASHINGTON
Kettle Falls — Greenwald, H. A. (L.)

Foreign Letters

PARIS

(From Our Regular Correspondent)

Oct. 8, 1920.

The Color of the Eyes and Hair Among the French People

The mixture of races that have constituted the French people of today by the process of fusion, ascertained from the median characteristics based on a great number of observations made by certain anthropologists, those of A. Bertillon being the most extensive, has determined the principal physical characteristics of our people. Thus, it has been found that the average height for men is 165 cm. (5 feet, 5 inches) and for women 157 cm. (5 feet, 2 inches) the median cephalic index fluctuates between 82.35 and 85.75, and the bizygomatic diameter is 139 mm. (5½ inches). On their own initiative Edmond Bayle, assistant chief of the legal identification service, and Dr. Léon MacAuliffe, associate director of the Ecole pratique des Hautes-Etudes, have sought to determine the distribution of the color of the hair and eyes among the French population. Their statistics, based on 6,652 subjects, bring out some new facts, which are of interest not only to anthropologists and ethnologists, but also to anatomists and clinicians. In the scale of classification introduced by Bertillon the different shades of hair color are arranged in a series, the extremes of which are light blond and pure black. The complete series is blond (albino, very light blond, medium blond, dark blond); chestnut (auburn, medium chestnut, dark chestnut, black chestnut) and black. Red hair constitutes a distinct series which has no ethnic significance but seems to be of abnormal origin.

The observations of Bayle and MacAuliffe indicate that 85.10 per cent. of the French people have chestnut hair. The blonds are next in order, forming only 12.32 per cent. of the population. Pure black hair is found in 1.83 per cent., that is, slightly more frequently than red hair, which altogether was found in only 0.72 per cent. of cases.

Pure black hair, so rare in France, is the rule in certain Mediterranean countries (for instance, in definite regions of Spain). Very light blonds form the majority of the population of northern Europe. Now, the French are precisely a racial mixture in which two great influences have been constantly counterbalanced: the Mediterranean races (the Arabian invasion, etc.) and the Germanic races of the North. This has resulted in the relative and sometimes absolute predominance of blond and light chestnut hair in the North and East, of brown (dark chestnut) in the South, and chestnut hair in the whole country. Certain precise observations remind one that beyond the Loire the average still shows a predominance of blonds at the present time.

Among the 6,652 subjects observed by Bayle and MacAuliffe, the distribution of eye color was: unpigmented, 18.58 per cent.; slightly pigmented, 42.52 per cent., and strongly pigmented, 38.87 per cent. Chestnut eyes, as chestnut hair, are predominant among our population, because our people are a mixture of the races of the North and the South. There is, in fact, a parallelism, if not absolute, at least considerable, between the development of the pigment of the hair and iris; the more accentuated the pigmentation of the eyes, the darker the hair, and inversely.

Foundation of an Institute of Psychology

The University of Paris recently decided on the foundation of an institute of psychology, to be administered by a board of directors composed of Profs. H. Delacroix, G. Dumas, J. Janet, H. Piéron, Etienne Rabaud and the deans of the faculties of letters and sciences, Ferdinand Brunot and François Houssay. The institute will offer theoretical and practical courses in general, physiologic, experimental, pathologic and comparative psychology. The Institute of Pedagogy, established last year, will be attached to the new institute as the section of pedagogy, and two new sections of applied psychology will be organized: a section of applied industrial psychology and a section of vocational orientation and selection.

The Dejerine Neurologic Museum

The dean of the medical faculty of the University of Paris has been authorized in the name of the university to accept from Mme. Auguste Klumpke, widow of Professor Dejerine, the gift of the pathologico-anatomic and iconographic collection of Dr. Dejerine, as well as an annuity of 100,000 francs. The arrears of the annuity will be used for the establishment of a museum of neurology, including a laboratory, which shall bear the name of "the J. Dejerine Museum (or Foundation)."

University News

The necessary appropriations having been granted for the purpose, the several faculties have created these new chairs:

The Faculty of Medicine and Pharmacy of Bordeaux, a chair of toxicology.

The Faculty of Medicine and Pharmacy of Lyons, a chair of clinical urology and a chair of otorhinolaryngology.

The Faculty of Medicine of Montpellier, a chair of gynecology and a chair of otorhinolaryngology.

The Faculty of Medicine of Nancy, a chair of clinical urology and a chair of otorhinolaryngology.

Foundation of Institute of Hygiene

The president of France having decreed that the public welfare demands the creation of certain institutes, notably an institute of hygiene, in affiliation with the University of Paris, on grounds accruing from liquidation of the congregation of Jesuits, the minister of public instruction has been authorized to acquire this property by expropriation in the name of the state.

Distinguished Honor to Dr. Roux

Dr. Emile Roux, director of the Pasteur Institute, has been awarded the Grand Cross of the Legion of Honor, with the citation:

"Principal collaborator and disciple of Pasteur, throughout an admirable life of simplicity, modesty, labor and devotion he has continued the great work of his master, notably by his researches on diphtheria; by his discovery of antidiphtheritic serum he has conquered this formidable disease and has saved a great number of lives. President of the Conseil supérieur d'hygiène, director of the Pasteur Institute for which he has gained universal renown. A noble and great figure in the world of science."

BUENOS AIRES

(From Our Regular Correspondent)

Sept. 15, 1920.

Second National Medical Congress

At the first medical congress, held in 1916, it was decided to hold future meetings every other year and omit them entirely when they coincided with international meetings. As the meeting scheduled for 1918 was postponed on account of the war, it was decided that the next congress should be held at Córdoba in 1920. Unfortunately, the organizing committee could not carry out its duties, especially in view of the recent disturbances at the University of Córdoba, and ended by presenting its resignation to the Argentine Medical Association. This organization has therefore decided to hold its second congress in the city of Buenos Aires and has already appointed another organizing committee for this purpose. Dr. Pedro Escudero has been appointed chairman of the committee.

International Congress on Foot and Mouth Disease

The meetings of the International Congress on Foot and Mouth Disease have just come to an end. Everything con-

nected with its work has received a great deal of publicity, but the results of the discussions have been meager. So far as etiology is concerned, nothing new was brought out. Numerous resolutions were adopted, advising the creation of special chairs, commissions, etc. Germany, France, Spain, Chile, Brazil, Uruguay and Paraguay were represented at the congress.

Academy of Medicine

Drs. Rafael and Marcelino de la Vegas have donated the ground for the building the Academy of Medicine is planning.

Intracranial Hypertension

Intracranial hypertension has been selected as the subject of discussion at the special meetings that will be held by the Argentine Medical Association in October. In this symposium, Drs. B. A. Houssay, R. H. Chiappori, A. Natale, H. H. Carelli and E. Finochietto will participate.

Goiter

Goiter is endemic in important zones of South America, especially the Andes region and certain mountainous territory in tropical South America. The cause of this disease has attracted much attention. In Brazil it was accepted unquestionably until recently that endemic goiter was caused by *Trypanosoma cruzi*, discovered by Chagas. Kraus and his co-workers pointed out that in Argentina goiter was found in places where *Triatoma infestans*, the insect carrier of *Trypanosoma*, prevailed; but at the same time and in nearby places would be found the insect infested by *Trypanosoma* without, however, any signs of the human disease. He concluded from these and other investigations that Chagas probably had made his investigation in a region where two different diseases prevailed at the same time, namely, trypanosomiasis and goiter. This opinion of Kraus has been accepted by several of the most brilliant of Oswaldo Cruz' pupils in Brazil. Up to the present, no investigations had been made of the water from goiter-infested regions; but recently Houssay has succeeded in producing experimental goiter in white rats after feeding them with water from the province of Salta. These investigations should be repeated on a large scale on account of their great theoretical and practical importance. They tend to confirm the theory that water is one of the transmitting agencies of goiter, as shown elsewhere.

Tribute to Dr. Fernando Pérez

Dr. Fernando Pérez is an Argentine physician who is now filling the position of Argentine minister to Vienna. He recently had the opportunity to carry out in the Vienna Medical School some research on the causative germ of ozena. Even in the present sad conditions under which the physicians and citizens of Vienna are struggling, Dr. Pérez' work has obtained assistance from the government and from private institutions. As a tribute to his endeavors, a formal session was held recently in his honor at the University of Vienna.

Scientific Interchange

Dr. F. Krause, a surgeon and specialist in the surgery of the nervous system, has arrived from Berlin. He has given an elementary lecture on cerebral physiology, and has devoted himself energetically to surgical work, accompanied by an unusual amount of newspaper publicity.

Professors Leotta of Rome, Dumas of Paris and S. Rossi of Montevideo have arrived in this city to deliver scientific lectures.

Branch of Biologic Societies

The Society of Biology of Buenos Aires has just become a branch of the Society of Biology of Paris. This incorporation will permit a more rapid dissemination of South American work on physiology.

BERLIN

(From Our Regular Correspondent)

Sep. 17, 1920.

Difficulties of Infant Feeding

The fact that undernourishment was of common prevalence in Germany throughout the war, and that the food condition grew progressively worse after the war, has been repeatedly brought to the attention of readers of The Journal. It is well known that the infant population suffered most from the consequences of the food shortage. The difficulties of infant feeding were greatly increased by the enforced restitution of 140,000 milch cows to Belgium. This circumstance, however, had the indirect advantage that it gave additional force to the arguments in favor of breast feeding, and not a few mothers were impelled to nurse their infants by consideration of the prevailing scarcity of cow's milk, whereas they subjected their earlier children to artificial feeding. An assistant at the gynecologic clinic of Freiburg University has attempted to solve the interesting problem whether the nursing ability of mothers and the chemistry of human milk had been unfavorably affected by the exigencies of the war. An analysis of the milk of fifty women led to the conclusion that the constitution of human milk was not affected, but the amount had been considerably reduced. In order to counteract the influence of this deficiency of cow's milk and human milk on the feeding of infants, the proposal was made to utilize the surplus milk of a few mothers for the nursing of other infants. In some cities this became an organized business, and human milk could be regularly purchased; in Wittenberg, for instance, human milk sold for from 5 to 10 marks per liter. As a result of an educational campaign on the feeding and care of infants and on the necessity of an unobjectionable milk supply, the number of women producing a surplus of breast milk gradually increased. It goes without saying that every precaution was exercised to guard against transmission of infectious diseases. At the present time, the necessity for this unusual measure no longer exists.

The Exigencies of the Privatdocent

In order to demonstrate statistically the needs of the privatdocents, the society of docents at the University of Halle early in the year sent out questionnaires designed to obtain information regarding the economic status of its members. Forty-three out of sixty-four docents answered the questions; of these, twenty-two were medical men, the majority of whom also practice medicine. The average age was 41.8 years for the medical group and 36.8 for the nonmedical group, and the average period of teaching was 8.2 and 7.7 years, respectively. The average annual income of all docents was 1,071 marks; the highest was 5,000 marks, next in order 3,327 marks, and the lowest 50 marks. Two had a definite income of 1,200 and 1,500 marks for stated teaching assignments, six had stipends ranging from 240 to 1,500 marks, and four held appointments as assistants. Only four of the docents had an income in excess of 10,000 above their fees for teaching, while eight of the twenty-two medical docents had a total annual income of less than 10,000 marks.

Retirement of College Professors

Whereas, in Austria, college professors are forced to retire when they reach the age of 69 (as a mark of distinction they may be continued in office for one year longer by official sanction only), the active career of university professors in Germany has heretofore been unrestricted. With due regard to the patent fact that not a small number of elderly teachers no longer meet the demands of education, as well as in consideration of the influence of an inordinate period of service in keeping the younger teachers from appointment unreasonably long, a factor that receives special emphasis by the

present urgent needs of the privatdocents, the governments of several German states have introduced a retirement system, not only for college professors, but also for all government officials. The Prussian law stipulates that the college teacher shall be retired from his official position at the age of 65, though he shall retain the right to deliver lectures and his membership and vote in the faculty on full pay. The far reaching effect of this legislative provision may be glimpsed from the results of its application to the University of Berlin:

In the theologic faculty, five out of eight professors in ordinary are over 65 years of age and only three are under 60, the youngest being 53 years old. On the faculty of law, three out of twelve professors have passed the stated limit, one is between 60 and 65, and the youngest of the remaining eight professors is 40 years old. Seven out of twenty-two professors in ordinary of the medical faculty are over 65 years old, seven more are over 60, while the youngest member of the whole group is 46. The faculty of philosophy has thirty-two professors over 65, four more over 60, and twenty-four under 60, the youngest being 41 years old. In Berlin alone, therefore, thirty-seven chairs would be immediately vacated under the terms of the compulsory retirement law.

Deaths

Frank Wood Spaulding, Clifton Springs, N. Y.; University of the City of New York, 1875; aged 76; a member of the Medical Society of the State of New York and of the New Hampshire Medical Society; at one time president of the Ontario County Medical Society; assistant physician Rockingham (N. H.) Hospital for the Insane, from 1877 to 1893; a member of the staff of the Clifton Springs (N. Y.) Sanatorium; died, October 7, from angina pectoris.

Henry Stewart, Canandaigua, N. Y.; New Orleans, (La.) School of Medicine, 1868; aged 73; who was commissioned Surgeon, Lieutenant, M. C., U. S. Navy, Oct. 6, 1878, and retired April 10, 1884, for incapacity resulting from an incident of service; died, October 4.

Richard Samuel Thompson, Tucson, Ariz.; Northwestern University Medical School, Chicago, 1905; aged 45; at one time health officer of Vancouver, Wash.; died on the Salt River Indian reservation, near Phoenix, September 18, from tuberculosis.

Frederick E. Clark, New Brighton, Staten Island, N. Y.; College of Physicians and Surgeons in the City of New York, 1873; aged 72; a member of the Medical Society of the State of New York; died in the Staten Island Hospital, October 5.

William Muirhead Howell, Williamsport, Pa.; Bellevue Hospital Medical College, 1869; aged 73; was killed instantly, October 5, when the automobile in which he was riding was struck by a train at a grade crossing near his home.

Richard Whitfield Large, Port Simpson, B. C.; Trinity Medical College, Toronto, 1897; aged 47; superintendent of the Port Simpson (B. C.) General Hospital; died, about August 27.

James Sneed Adkerson, Newbern, Tenn.; Vanderbilt University, Nashville, Tenn., 1891; aged 48; died in Baird-Dulaney Hospital, Dyersburg, Tenn., September 16, from uremia.

Walter A. Camp, Springfield, Mo.; Atlanta (Ga.) Medical College, 1878; aged 66; a member of the Missouri State Medical Association; died, September 24, from cerebral hemorrhage.

Mabel Beecher King, Flint, Mich.; University of Michigan, Ann Arbor, 1876; aged 82; a member of the Michigan State Medical Society; died, about October 5, from heart disease.

Edith V. Anderson Lamoree, Ventura, Calif.; Cooper Medical College, San Francisco, 1894; aged 50; physician at the State Normal School for Girls; died, September 18.

James E. Sullivan, Providence, R. I.; Bellevue Hospital Medical College, 1879; a member of the Rhode Island and Massachusetts Medical Societies; died, October 8.

⊕ Indicates "Fellow" of the American Medical Association.

Hermann Harry Hanstein, Chicago; Rush Medical College, Chicago, 1898; aged 44; died in St. Paul, Minn., September 29, from cerebral hemorrhage.

Charles M. Mickle, El Paso, Texas (license, Texas, 1894); aged 63; died in San Antonio, Texas, September 12, from cerebral hemorrhage.

Charles Frederick Mitchell ⊕ Cleveland; Queens University, Kingston, Ont., 1890; aged 53; died, September 26, from cerebral hemorrhage.

Annie May Robinson ⊕ Birmingham, Ala.; Woman's Medical College of Pennsylvania, Philadelphia, 1905; aged 55; died, October 1.

J. Edward Cox ⊕ Quinnimont, W. Va.; Medical College of Virginia, Richmond, 1895; aged 51; died in Stanaford, W. Va., August 23.

Howard James, New York; George Washington University, Washington, D. C., 1893; aged 54; died, September 29, from pneumonia.

John Neely Barber, Atlanta, Ga.; Meharry Medical College, Nashville, 1905; aged 42; a colored practitioner; died, October 4.

V. Eugenia Metzger, Washington, D. C.; University Medical College of Kansas City, Mo., 1896; aged 48; died, September 1.

John D. Cole, New York; Hahnemann Medical College and Hospital, Chicago, 1882; aged 63; died, September 25.

Malone M. Cooley, Paducah, Ky.; University of Nashville, Tenn., 1896; aged 47; died, September 24, from nephritis.

Jacob Swartley Mancha, Los Angeles; University of the City of New York, 1884; aged 81; died September 24.

William H. Simmons ⊕ Bangor, Maine; University of Wurtzburg, Germany, 1872; aged 72; died, October 4.

Chambers A. McLean, Decatur, Ill.; Eclectic Medical Institute, Cincinnati, 1871; aged 88; died, September 16.

Charles Forrester Roberts, New York; Bellevue Hospital Medical College, 1867; aged 78; died, September 27.

George Koons, Indianapolis; Medical College of Indiana, Indianapolis, 1902; died, September 28.

Edward Joseph Carroll, Brooklyn; University of the City of New York, 1882; died, October 2.

Richard H. Angell, New Orleans; Tulane University, New Orleans, 1890; died, September 30.

Correction.—In the notice of the death of Dr. Adolph Gehrmann, Chicago, which appeared in THE JOURNAL, October 9, page 1015, the cause of death was erroneously given as cancer of the larynx. Dr. Gehrmann died from sarcoma of the mediastinum.

Marriages

EDWIN STANLEY BRIDGES, St. John, N. B., to Miss Alison Marguerite Alexander of Campobello, N. B., September 16.

JOEL MILLER MELICK, Worcester, Mass., to Miss Bertha McDonough of Brookline, Mass., October 2.

FRANK JUDSON MOORE, Affinity, W. Va., to Miss Maurnetia Livingston of Cold Springs, Ky., October 1.

JAMES RISLING REULING, Davenport, Iowa, to Miss Dorothy Elmendorf Teel of New York, October 5.

SAMUEL RUSH MILLER, Knoxville, to Miss Victoria Lucretia Jordan of Wabash, Ind., September 29.

HENRY AUGUSTINE LATANE, Alexandria, Va., to Miss Polly Graham of New York, September 22.

ALFRED HENRY A. MAYER, Baltimore, to Mrs. Grace E. Whitney, at Philadelphia, recently.

RALPH GOLDSMITH CAROTHERS to Miss Helen B. Holmes, both of Cincinnati, September 28.

CHARLES TERRY BUTLER to Miss Dorothy Powell Black, both of New York, October 12.

SAMUEL DURFEY SWOPE, Deming, N. M., to Miss Margaret Maule of New York, recently.

DAVID NYE BARROWS to Miss Frances L. Scoville, both of New York, October 10.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

MORE MISBRANDED PRODUCTS

Salubrin.—A quantity of this nostrum shipped in February and May, 1919, by the Salubrin Laboratory, Grand Crossing, Chicago, was declared misbranded. The stuff was analyzed by the federal chemists, who reported that it contained alcohol, ethyl acetate, acetic acid, and traces of aldehyd. The preparation was represented as a remedy for ringworm, dandruff, diarrhea, dyspepsia, piles, sore throat, blood poisoning, tuberculous ulcers, consumption, diphtheria, barbers' itch and falling of the womb. These and many other claims were declared false and fraudulent; and, no claimant having appeared for the property, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7404; issued Sept. 13, 1920.*]

Dolomol-Calomel and Dolomol-Iodoform.—The Pulvola Chemical Company, Jersey City, N. J., shipped in February, 1918, quantities of Dolomol-Calomel and Dolomol-Iodoform which were adulterated and misbranded. The Dolomol-Calomel bore on the label the statement "Calomel 25 Per Cent."; as a matter of fact, it contained less than 11 (10.99) per cent. The Dolomol-Iodoform was labeled as "Iodoform 10 Per Cent."; as a matter of fact, it contained approximately only 7.09 per cent. of iodoform. In December, 1918, the Pulvola Chemical Co. pleaded guilty and was fined $25.—[*Notice of Judgment No. 6875; issued May 4, 1920.*]

Influenza Special (Senoret).—A quantity of this product, shipped in October, 1918, by the Senoret Chemical Co., St. Louis, was declared misbranded. When analyzed by the federal chemists it was found to consist essentially of a sugar-coated tablet containing aloin, mydriatic alkaloids and cinchonin, with little or no quinin and with indications of aconite. The therapeutic claims made for the preparation were declared to be false and fraudulent. In June, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product should be destroyed.—[*Notice of Judgment No. 7452; issued Sept. 24, 1920.*]

Gray's Ointment.—A number of packages of this preparation shipped in August, 1919, by Dr. W. F. Gray & Co., Nashville, Tenn., were declared misbranded. Analysis of a sample made in the Bureau of Chemistry showed it to consist essentially of a compound of lead, linseed oil, wax and turpentine. Some of the conditions for which the ointment was recommended were: mercurial and other ulcers, rheumatic and other pains, cancerous affections, snake bites, sore nipples, weak muscles, sore eyes, sore throat, sore back and "in fact, almost every other external disease that afflicts man or brute." The therapeutic claims were declared false and fraudulent. In October, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product should be destroyed.—[*Notice of Judgment No. 7469; issued Sept. 24, 1920.*]

Vegetable Blood Purifier.—In April, 1918, fifty-seven bottles of this product, that had been consigned by the Gibson-Howell Co. of Jersey City, N. J., were seized on the charge of misbranding. The product was recommended, among other things, "for the relief of scrofula, cancerous or indolent tumors, eruptive diseases, erysipelas, syphilitic affections, rheumatism, ulcers, catarrh, boils, pimples, ringworms, and all disorders due to a depraved condition of the blood." Analysis showed the "Vegetable Blood Purifier" to consist essentially of Epsom salt, a laxative vegetable drug, some plant extractives, glycerin, alcohol and water. The therapeutic claims were declared false and fraudulent and applied with a knowledge of their falsity for the purpose of defrauding purchasers. In July, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product should be destroyed.—[*Notice of Judgment No. 7489; issued Sept. 24, 1920.*]

Renovine.—In May, 1918, the Van Vleet-Mansfield Drug Company, Memphis, Tenn., shipped a quantity of "Renovine" which was misbranded. Analysis by the federal chemists showed the product to consist essentially of potassium bromid, salicylic acid, laxative plant material, alcohol and water. The product was falsely and fraudulently represented as a treatment, remedy and cure for diseases of the heart and nerves, epilepsy, melancholia, change of life, stomach trouble, kidney disease, pneumonia, malaria, apoplexy, paralysis and several other things. In November, 1919, the Van Vleet-Mansfield Drug Co. pleaded guilty and was fined $50 and costs.—[*Notice of Judgment No. 7497; issued Sept. 24, 1920.*]

Cin-Ko-Na and Iron.—A quantity of this product shipped in March, 1919, by the De Lacy Chemical Company, St. Louis, was declared misbranded. It was sold under the claim that it was a "Valuable Remedy for all Blood Diseases, Rheumatism, Catarrh and all Nervous Diseases" and was "Of Great Benefit and Most Useful for Consumption . . . and Bright's Disease." Also that it was "a perfect Remedy in all Chronic Diseases peculiar to Women" and a "Positive Guaranteed Cure for Catarrh, Coughs, Colds, Grip, Bronchitis and Catarrh of the Stomach." Analysis showed the preparation to consist essentially of a laxative plant drug, small amounts of quinin, strychnin, iron salts, glycerin, alcohol and water. The claims quoted above and many others were declared false and fraudulent. In December, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product should be destroyed.—[*Notice of Judgment No. 7506; issued Sept. 24, 1920.*]

Craig Healing Springs Mineral Water.—In May, 1919, the Craig Healing Springs Hotels, New Castle, Va., shipped 252 gallons of this water which the government seized on the charge of misbranding. The label declared that the water "Relieves and Cures Diseases of the skin, Eczema, Scrofulous Sores, Cutaneous and Dermatic Eruptions . . . Dyspepsia, Constipation, Bilious Diarrhea, Catarrhal Troubles and other derangements of the stomach, Leucorrhea and Hemorrhoids." It was further recommended as a cure for diabetes and Bright's disease. These and similar claims were declared false and fraudulent. In September, 1919, judgment of condemnation and forfeiture was entered and it was ordered by the court that the product be destroyed.—[*Notice of Judgment No. 7519; issued Sept. 24, 1920.*]

Laxa-Cura Water.—The Laxa-Cura Water Co. shipped in October, 1918, a quantity of Laxa-Cura Water, which was adulterated and misbranded. It was held adulterated because it consisted in part of a filthy, decomposed and putrid animal and vegetable substance. It was misbranded because an alleged analysis published on the label was shown to be incorrect, the water containing less of certain ingredients than the label showed. It was also declared misbranded because it was falsely and fraudulently represented as a remedy and cure for diseases of the kidneys, liver and stomach, etc. In October, 1919, the defendant company pleaded guilty and was fined $100.—[*Notice of Judgment No. 7535; issued Sept. 24, 1920.*]

Reuter's Little Pills for the Liver.—Barclay & Co., New York, shipped in June, 1918, a quantity of this product which was misbranded. Analysis showed the pills to contain aloin, strychnin, atropin, and emetin. The pills were falsely and fraudulently represented as a treatment, remedy and cure for dyspepsia, headache, flatulence, yellow jaundice, enlarged liver, cold feet, tape worm, sore eyes, nightmare diabetes and several other things. In January, 1920, the defendant company pleaded guilty and was fined $25.—[*Notice of Judgment No. 7536; issued Sept. 24, 1920.*]

Correspondence

"THE STRUCTURE OF MUSCLES"

To the Editor:—In your editorial on "The Structure of Muscles," September 11, which has but recently come to my attention, I am afraid you impute more sweeping deductions than I intended in the original article on which your comment was based. The article did not show "that the muscles can store an enormous amount of material both intercellularly and intracellularly" but did deduce that the shrinkage of the muscle fibers "must be due to a resorption of inter- and intra-cellular substances of a stored nature." That such substances exist—glycogen and fat, for example—has long been known.

It is greatly to be regretted that your review should impute to me the credit for a protein storage theory. This may be due to your failing to read the short introduction to the article in question. I might have prevented the error by quoting the original promulgator in my summary. This theory was first advanced by C. W. Greene (*J. Biol. Chem.* **33**:xiii) before the twelfth annual meeting of the Society of Biological Chemists in a paper entitled "The Composition of the Ovaries of the Salmon during Migration." The following is quoted from this article: "So it is obvious that this great excess of protein must exist in the muscle in the form of stored protein. There is a protein storage in the salmon comparable to the similar storage of fat. This stored protein is available during the migration for the synthesis of new-protein tissue in the developing ovaries." My paper gave credit to a later paper by Greene (*J. Biol. Chem.* **39**:435) which reaffirmed the theory. The evidence I submitted confirms the theory of Greene.

C. ROBERT MOULTON, Columbia, Mo.
Professor of Agricultural Chemistry,
University of Missouri.

"THE VIABILITY OF RED BLOOD CELLS"

To the Editor:—In an editorial discussion in THE JOURNAL (Sept. 25, 1920, p. 878) on the preservation of red cells for transfusion purposes, a hope is expressed that the experimental findings may ultimately be rendered applicable to man. It will not perhaps be out of place to draw attention to a recent instance of such application on an extensive scale, and under conditions of much self-devotion on the part of the worker principally concerned. I refer to the use of "canned blood" by Major Oswald H. Robertson, D.S.O., and others on the British front during the years of trench warfare.

For his work with preserved cells, Robertson employed only the blood of men belonging to Group IV (Moss), the universal donor group. Rear area men and sturdy convalescents were the donors, and blood was never difficult to obtain. It was taken directly into a glucose-citrate mixture, preserved in the cold, and used at casualty clearing stations and regimental aid posts during rush periods. Details of the technic will be found in Robertson's brief article in the *British Medical Journal* (**1**:691 [June 22] 1918; Memo. 4, British Medical Research Committee). The cells preserved for periods up to twenty-six days served the purpose of transfusion excellently, and the use of the method soon spread. During the German drive of March, 1918, much "canned blood" fell into the enemy's hands.

It is an interesting fact that Dr. Robertson, native-born, Harvard '13, and a member of the Peter Bent Brigham Unit of Boston, was the author of the British memorandum on transfusion for army use (Report No. 4 of the British Medical Research Committee, Memorandum on Blood Transfusion, 1918) and devised the transfusion apparatus (*Brit. M. J.* **1**:477 [April 27] 1918; also memorandum cited above) officially adopted by the British and manufactured for them in quantity toward the close of the war. His more recent papers with Captain Bock on the treatment of depletion from hemorrhage by indirect methods deserve special mention, since they show that water by the mouth and the rectum can, in many grave instances of depletion, be used to replace transfusion (*J. Exper. Med.* **29**:139, 155 [Feb.] 1919).

His work has proved conclusively that human red cells are valuable for transfusion after several weeks of preservation. But there is a drawback to blood as at present preserved in the fact that its plasma, being mixed with sodium citrate and dextrose, must be in large part discarded. The mere fluid bulk thus lost can be made up with gelatin solution, as was Robertson's practice, but one will scarcely contend that this is as valuable as plasma. Whether central depots of preserved blood in large cities, such as Burmeister has suggested (THE JOURNAL, Jan. 15, 1916, p. 164), are practical, remains to be seen. The gradual improvement in fluid blood substitutes, and the increased use of simple transfusion methods will tend largely to decrease the number of cases in which a flask of preserved blood would prove life-saving. Corpuscular incompatibilities, though, will remain; and times and circumstances will still arise in which the period of search for a donor cannot but prove critical to the patient.

PEYTON ROUS, M.D., New York.
Rockefeller Institute for Medical Research.

"THE PHYSICIAN'S OFFICE"

To the Editor:—Your editorial comment (THE JOURNAL, Aug. 21, 1920, p. 545) on the necessity of maintaining a respectable appearing office brings to mind a certain piece of writing from a physician of several centuries ago. Here are the requisites necessary for success in medicine, as quoted by Crabtre ("Funny Side of Physic: or, the Mysteries of Medicine," Hartford, Conn., J. B. Burr and Hyde, 1872):

First. A decent black suit, and (if your credit will stretch so far), a plush jacket, not a pin the worse if threadbare as a tailor's cloak—it shows the more reverend antiquity.

Second. You must carry a caduceus, or cane, like Mercury, capped with a civet-box (or snuff-box like Sir Richard's), and must walk with becoming gravity, as if in deep contemplation upon an arbitrament between life and death.

Third. You must hire convenient lodgings in a respectable neighborhood, with a hood (small door or window, through which to receive night calls, etc.) at the door; have your reception-room hung with pictures of some celebrated physicians, ancient historical scenes, and anatomical plates, and the floor belittered with gallipots and half-empty bottles. Any sexton will furnish your window with a skull, in hope of your custom.

Fourth. Let your desk never be without some musty old Greek and Arabic authors, and on your table some work on anatomy, open at a picture page, to amuse, if not astonish spectators, and carelessly thrown on the same a few gilt shillings, to represent so many guineas received that morning as fees.

Fifth. Fail not to patronize neighboring alehouses which may, in turn, recommend you to inquirers; and hold correspondence with all the nurses and midwives whose address you may obtain, to applaud your skill at gossiping.

Sixth. Be not over modest in airy pretensions, not forgetting that loquaciousness and impudence are essential in gaining a fool's confidence. In case you are naturally backward in language, or have an impediment of speech, you are recommended to persevere in a habit of mysterious and profound silence before patients, rendered impressive by grave nods and ahems.

EDWARD PODOLSKY, New York.

COAGULATION TIME OF BLOOD

To the Editor:—The capillary tube method for testing the coagulation time of blood, we have long used. But the technic abstracted in THE JOURNAL, Oct. 2, 1920, page 962, is unnecessarily cumbersome, and, also unnecessarily, as painful to the patient as taking a blood specimen for a Wassermann test.

A simple prick of the lower edge of the ear lobe, as for making a blood count, furnishes ample flow of blood for

filling a single capillary tube of about 15 cm. length, one end of the tube being held to the puncture site, and the tube inclined downward, gravity and capillarity sufficing to fill it.

A glance at a time-piece at the start of filling fixes the initial time, and, where the flow, as occasionally happens, is slightly sluggish, a second glance shows the half minute or so required for filling, and makes possible a slight allowance for the difference in time between the two ends.

One cm. sections may then be carefully broken at 15 or 30 second intervals for determination of the beginning of threading, or coagulation.

What seems to be an improvement to take the place of breaking has lately been hit upon in the laboratory and has checked in accuracy so far as compared.

When letting the blood run into the capillary, the tube is removed from the ear when the flow is 2 or 3 cm. from the lower end. The column of blood is then allowed to run nearly to the lower end, when the tube is inverted and the blood allowed to run nearly to the other end. The tube is then again inverted and the process continued till flow ceases, when, as can be checked by breaking, coagulation has occurred.

Simultaneous use of break and flow methods has failed to show any stringing before flow stoppage.

GME. W. DE LA MOTTE, M.S., San Francisco.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MEDICATED ALCOHOL

To the Editor:—One of our local druggists uses this formula for alcohol for bathing purposes: carbolic acid and tannic acid, 1 dram each to 4 ounces each of alcohol and water. Is this mixture thus rendered nontoxic? Please omit my name. G. E., Colorado.

ANSWER.—It is stated in Section 61, Regulations 60 of the National Prohibition Act, that wholesale and retail druggists or pharmacists may medicate alcohol in accordance with any one of the seven formulas listed below:

1. Bichloride of mercury, 1 part; alcohol, 2,000 parts.
2. Bichloride of mercury, 0.8 gm.; hydrochloric acid, 60 c.c.; alcohol, 64 c.c.; water, 300 c.c.
3. Bichloride of mercury, 1½ grains; hydrochloric acid, 2 drams; alcohol, 4 ounces.
4. Formaldehyde, 2 parts; glycerin, 2 parts; alcohol, 96 parts.
5. Carbolic acid, 1 dram; tannic acid, 1 dram; alcohol, 1 pint; water, 1 pint.
6. Alum, ½ ounce; formaldehyde, 2 drams; camphor, 1 ounce; alcohol and water, each 1 pint.
7. Liquor cresolis comp. (U. S. P.), 10 c.c.; alcohol, 1,000 c.c.

The formula mentioned in our correspondent's letter presumably is intended to be in accordance with No. 5 in the list. As all alcohol medicated in accordance with any one of the foregoing formulas is regarded as unfit for beverage purposes, it is obvious that none is "nontoxic." Such medicated alcohol may be sold by pharmacists in quantities not to exceed 1 pint to persons who do not hold permits to sell or use intoxicating liquor; in each case the container of such medicated alcohol must bear a "poison" label.

Closing Schools as a Means of Controlling Epidemics.—Closing schools as a means of controlling epidemics of measles, whooping cough, scarlet fever, diphtheria, smallpox and poliomyelitis should be considered as a last resort to be used only when thorough and systematic application of other measures fails to effect control. As a method it is clumsy, unscientific, and unsatisfactory, for it fails to control and results in the loss of school time and money. The modern method of careful daily inspection of infected schools, isolation of sick children and quarantine of contacts, is both more effective and economical.—*Pub. Health Rep.*, Nov. 21, 1919.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 9-10. Sec. Reg. Bd., Dr. F. J. Stout, Brinkley. Sec. Electic Bd., Dr. C. E. Laws, Ft. Smith.

CONNECTICUT: Hartford, Nov. 9-10. Sec. Reg. Bd., Dr. Robert L. Rowley, Hartford.

CONNECTICUT: New Haven, Nov. 9. Sec. Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Eclectic Bd., Dr. James E. Hair, Bridgeport.

FLORIDA: Gainsville, Dec. 6-7. Sec. Reg. Board, Dr. W. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

FLORIDA: Jacksonville, Nov. 4. Sec., Homeo. Board, Dr. George A. Davis, Sec., East Port.

LOUISIANA New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 1551 Canal St., New Orleans.

LOUISIANA: New Orleans, Nov. 2. Sec., Homeo. Board, Dr. F. H. Hardenstein, 702 Macheca Bldg., New Orleans.

MAINE: Portland, Nov. 9-10. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

NEBRASKA: Lincoln, Nov. 11-12. Sec., Mr. H. H. Antles, Lincoln.

NEVADA: Carson City, Nov. 1. Sec., Dr. Simeon L. Lee, Carson City.

OHIO: Columbus, Dec. 1-3. Sec., H. M. Platter, State House, Columbus.

SOUTH CAROLINA: Columbia, Nov. 9. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 16-18. Sec., Dr. Thomas J. Crowe, 617-20 Trust Bldg., Dallas.

Minnesota June Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, June 1-4, 1920. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 15 candidates examined 14 passed and 1 failed. Eight candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Kansas	(1916)	90.6
Johns Hopkins University	(1917)	90.5
Harvard University	(1919)*	84
Univ. of Minn. (1920) 81.7, 86, 86.1, 87, 87.8, 87.9, 89.8, 90, 90.5, 92.3.*		
University of Louisville	(1916)	90.7
FAILED		
University of Louisville	(1911)	**

College	Year Grad.	Reciprocity with
LICENSED BY EXAMINATION		
College of Physicians and Surgeons, Chicago	(1901)	Iowa
Northwestern University	(1918)	Illinois
State University of Iowa College of Homeo. Med.	(1902)	Iowa
State University of Iowa College of Medicine	(1919)	Iowa
University of Michigan Medical School	(1918)	Michigan
St Louis University	(1903)	Illinois
Pulte Medical College	(1888)	Nebraska
Wisconsin College of Physicians and Surgeons	(1906)	Wisconsin

* These candidates have finished the medical course and will obtain the M.D. degree after they have completed a year's internship in a hospital.

** No grade given.

Mississippi June Examination

Dr. W. S. Leathers, secretary, Mississippi State Board of Health, reports the written examination held at Jackson, June 21-22, 1920. The examination covered 12 subjects and included 96 questions. An average of 75 per cent. was required to pass. Of the 34 candidates examined, 32, including 2 osteopaths, passed and 2, including one chiropractic, failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Atlanta College of Physicians and Surgeons	(1902)	92
Northwestern University	(1919) 80, (1920) *	89*
Tulane University of Louisiana School of Medicine (1920) 76, 78, 78, 81, 83, 84, 84, 86, 87, 88, 90.	(1919)	89
Medical School of Maine	(1913)	91
Mississippi Medical College	(1911)	85
University of Oklahoma School of Medicine	(1920)	91
Jefferson Medical College of Philadelphia	(1920)	93
University of Pennsylvania	(1920)	91
Meharry Medical College	(1920) 75,	83, 83
Memphis Hospital Medical College	(1911)	78
University of Virginia Department of Medicine (1920) 85, 85, 87, 88.	(1919)	86
University of Toronto Faculty of Medicine	(1919)	87
FAILED		
Louisville National Medical College	(1916)	36

* Official information says this man failed to complete his fourth year.

Book Notices

ITALIAN SOCIAL CUSTOMS OF THE SIXTEENTH CENTURY AND THEIR INFLUENCE ON THE LITERATURE OF EUROPE. By Thomas Frederick Crane. Cloth. Price, $5. Pp. 689. New Haven: Yale University Press, 1920.

This book was prepared to show the effect of the customs and literature of Italy on all the literature of Europe. The chief sources of information concerning the customs are the discussions in the literature of the period, such as the Decameron, and the novels and short stories of the times. Above all, the book reveals the importance of what the modern Freudians call the "libido" in the life of the people at that time. This was not repressed, as is our modern custom, but was the chief subject of conversation and interest. There are numerous quotations of Italian proverbs and sayings. The philosophy of that period was the living of physical life to the utmost. The book is not medical or near medical, but it is one that the majority of medical men will find both interesting and enlightening.

A SHORT HISTORY OF NURSING FROM THE EARLIEST TIMES TO THE PRESENT DAY. By Lavinia L. Dock, R.N., Secretary, International Council of Nurses, in Collaboration with Isabel Maitland Stewart, A.M., R.N., Assistant Professor, Department of Nursing and Health, Teachers College, Columbia University, New York. Cloth. Price, $3.50. Pp. 392. New York: G. P. Putnam's Sons, 1920.

This book should appeal to all who are directly or indirectly interested in nursing. Especially does this statement apply to those who follow nursing as a profession. As the authors say, no occupation can be intelligently followed or understood unless it is illumined and interpreted by the light of history. While most of us look on nursing as quite modern, it is almost as old as humanity. Modern nursing—that is, nursing as a profession—may be regarded as having its origin in the Crimean War, through the personality of Florence Nightingale. But nursing—the care of the sick—was a calling long before that war or before Miss Nightingale's time. This book is an abridgment of the authors' four volume History of Nursing. For all practical purposes, it is better for the average person than the larger work; it contains all that is important. Being more compact and cheaper, it is within the reach of a larger number and, therefore, will be more effective for the general good. The book is one to be commended to all who are interested in the subject.

THE CARE AND FEEDING OF SOUTHERN BABIES. A Guide for Mothers, Nurses and Baby Welfare Workers of the South. By Owen H. Wilson, M.D., Professor of Diseases of Children, Vanderbilt University. Cloth. Price $1.25. Pp. 131. Nashville: Baird-Ward Printing Company, 1920.

This small volume should prove an excellent guide to mothers, nurses and baby welfare workers of the South. It goes a long way toward combating many popular superstitions, and yet does not attempt to go into all the details and, therefore, accomplish an impossibility. The book is filled with much hard common sense, and carries with it the personality of the author. While one may disagree with him on certain things, one will yet feel that the book is safe and sane.

HEART TROUBLES: THEIR PREVENTION AND RELIEF. By Louis Faugères Bishop, M.A., M.D., Sc.D., Professor of the Heart and Circulatory Diseases, Fordham University. Cloth. Price, $3.50. Pp. 422, with illustrations. New York: Funk & Wagnalls Company, 1920.

We quote from the publishers' letter to the literary editor of THE JOURNAL:

> It is designed for the guidance and help of the layman who suffers from heart trouble or for the family or immediate relatives of such sufferers, and especially for the nurses in charge of these cases. It describes the various types of heart diseases in a most lucid and informing way and tells exactly what should be done in each case, the mode of life best suited to the trouble, the most beneficial diet, etc. Its cheery optimism and sane counsel should prove of real service not only to all heart patients, but also physicians, who can obtain much valuable information from the instructions it gives.

The statements are in large measure true. But we detect, as we read the book, a flavor that reminds us of the circular of the advertising doctor. For the layman, a discussion of electrocardiography with numerous plates and diagrams can do little except to bewilder and lead the reader to consult a physician—presumably the one who writes so learnedly about the subject. The fact that some of the author's success and greatness has been due to the influence of such masters as Osler and Mackenzie may be true—we are glad it is so. But to force into the volume their pictures, and to comment on the author's personal relations and acquaintance with these men is, to put it mildly, in bad taste.

PHYSIOLOGICAL PRINCIPLES IN TREATMENT. By W. Langdon Brown, M.A., M.D., F.R.C.P., Physician, with Charge of Out-Patients, St. Bartholomew's Hospital. Fourth edition. Cloth. Price, $3. Pp. 427. New York: William Wood & Co., 1920.

The scope of this work may be gathered from its table of contents: principles of organotherapy; rational treatment of gastric disorders; mechanical factors in digestion and indigestion; work of the pancreas; uric acid and the purin bodies; oxaluria, phosphaturia and urinary calculi; albuminuria and the treatment of nephritis; glycosuria and diabetes; acidosis and acid intoxications; intestinal intoxications; irregular action of the heart; the vasomotor system in disease; cyanosis, and vitamins and calcium salts. The aim is to discuss the physiologic principles at the basis of these different conditions and to show how the deviation from their normal working may best be prevented or restored. The author is fairly successful, though often the handling of the topic is rather incomplete and not up to date.

Medicolegal

Disclosure of Confidential Information as to Contagious Disease

(Simonsen v. Swenson (Neb.), 177 N. W. R. 831)

The Supreme Court of Nebraska, in affirming a judgment on a verdict that the jury was directed to render for the defendant, says that this was an action for damages for an alleged breach of duty arising from the confidential relationship between the defendant, who was a physician, and the plaintiff, who was his patient. The case is a novel one. No other cases bearing directly on the question were cited by counsel, and this court's search for them was unsuccessful. The plaintiff, with other employees of a telephone company, was stopping at a small hotel operated by a Mrs. Bristol. He was a stranger in the town. He became afflicted with sores on his body, and went to the defendant, who took the history of his trouble, gave him a physical examination, and informed him that he believed his disease to be syphilis. He further stated, however, that it was impossible to be positive without making certain Wassermann tests, for which he had no equipment. The defendant was the physician of the Bristol family, and acted as their hotel physician when one was needed. He told the plaintiff that there would be much danger of his communicating the disease to others in the hotel if he remained there, and requested that he leave the next day, which the plaintiff promised to do. On the following day the defendant, while making a professional call on Mr. Bristol, who was ill, learned that the plaintiff had not moved from the hotel. He therefore warned Mrs. Bristol that he thought the plaintiff was afflicted with a "contagious disease," and for her to be careful, to disinfect his bedclothing, and to wash her hands in alcohol afterward. Mrs. Bristol, acting on this warning, placed all of the plaintiff's belongings in the hallway, and fumigated his room. The plaintiff was forced to leave. After leaving the town, he consulted another physician, and one Wassermann test was made, which proved negative; and that physician could not say whether the plaintiff had syphilis or not.

The plaintiff contended that, having shown the relationship of physician and patient, the law prohibits absolutely a disclosure of any confidential communication, at any time, or under any circumstances, and that a breach of this duty of secrecy, on the part of the physician, gives rise to a cause of action in damages in favor of the patient. At common law there was no privilege between physician and patient, and this rule still prevails when not changed by statute. Section

7898 of the Revised Statutes of Nebraska of 1913 provides that a physician shall not be allowed to disclose, on the witness stand, any confidential communication entrusted to him in his professional capacity. The disclosure of confidences in this case was not by the defendant as a sworn witness, and this statute, therefore, obviously did not apply and had no bearing on this case. Section 2721, however, provides that no physician shall practice medicine without a license from the board of health, and that such a license may be revoked when a physician is found guilty of "unprofessional or dishonorable conduct." Among the acts of such misconduct, defined by the statute, is the "betrayal of a professional secret to the detriment of a patient."

By the latter statute a positive duty is imposed on the physician, both for the benefit and advantage of the patient as well as in the interest of general public policy. The relation of physician and patient is necessarily a highly confidential one. It is often necessary for the patient to give information about himself which would be most embarrassing or harmful to him if given general circulation. This information the physician is bound, not only on his own professional honor and the ethics of his high profession, to keep secret, but by reason of the affirmative mandate of the statute itself. A wrongful breach of such confidence, and a betrayal of such trust, would give rise to a civil action for the damages naturally flowing from such wrong. Is such a rule of secrecy, then, subject to any qualifications or exceptions? The physician's duty does not necessarily end with the patient, for, on the other hand, the malady of his patient may be such that a duty may be owing to the public and, in some cases, to other particular individuals. Recognition of that fact is given by the statutes in Nebraska, which delegate power to the state board of health, and to municipalities generally, to require reports of, and provide rules of quarantine for, diseases which are contagious and dangerous. An ordinance in Omaha enacted under such power, providing quarantine of communicable venereal diseases, was sustained by this court in *Brown* v. *Manning*, 103 Neb. 540, 172 N. W. 522.

When a physician, in response to a duty imposed by statute, makes disclosure to public authorities of private confidences of his patient, to the extent only of what is necessary to a strict compliance with the statute on his part, and when his report is made in the manner prescribed by law, he of course has committed no breach of duty toward his patient, and has betrayed no confidence, and no liability can result. Can the same privilege be extended to him in any instance in the absence of an express legal enactment imposing on him a strict duty to report? The statute making the "betrayal of a professional secret" misconduct on the part of a physician is in derogation of the common law, and should be strictly construed. The court believes the word "betrayal" is used to signify a wrongful disclosure of a professional secret in violation of the trust imposed by the patient. No patient can expect that if his malady is found to be of a dangerously contagious nature he can still require it to be kept secret from those to whom, if there was no disclosure, such disease would be transmitted. The information given to a physician by his patient, though confidential, must, it seems to the court, be given and received subject to the qualification that if the patient's disease is found to be of a dangerous and so highly contagious or infectious a nature that it will necessarily be transmitted to others unless the danger of contagion is disclosed to them, then the physician should, in that event, if no other means of protection is possible, be privileged to make so much of a disclosure to such persons as is necessary to prevent the spread of the disease. A disclosure in such case would, it follows, not be a betrayal of the confidence of the patient, since the patient must know, when he imparts the information or subjects himself to the examination, that, in the exception stated, his disease may be disclosed.

In order that such a privilege of making a disclosure may be available to a physician, however, he must have had the ordinary skill and learning of a physician, and must have exercised ordinary diligence and care in making his diagnosis; otherwise he could be subjected to an action for negligence in making a wrongful report. In making such disclosure a physician must also be governed by the rules as to qualifiedly privileged communications in slander and libel cases. He must prove that a disclosure was necessary to prevent spread of disease, that the communication was to one who, it was reasonable to suppose, might otherwise be exposed, and that he himself acted in entire good faith, with reasonable grounds for his diagnosis, and without malice.

It appears to the court that the facts disclosed by the record in this case showed that the occasion was privileged; that the defendant had reasonable grounds for his belief; that he made no further disclosure than was reasonably necessary under the circumstances, and that he acted in good faith and without malice. Had the plaintiff put in issue any of these facts, the case should have gone to the jury; but the testimony introduced raised no issues on those questions.

The syllabus by the court summarizes what is decided in this case as being that:

The information given to a physician by his patient, though confidential, is given subject to the understanding, conclusively presumed in law, that, if the patient's disease is found to be of a dangerous and so highly contagious or infectious a nature that it may be transmitted to others unless the danger of transmission is disclosed to them, the physician is then privileged to make so much of a disclosure to such persons as is reasonable and necessary to prevent the spread of the disease.

Where a physician makes such a disclosure, believing that a disclosure was necessary to prevent the spread of the disease, and when the disclosure is made to one who, it is reasonable to believe, might otherwise be exposed, and when the physician acts in entire good faith, with reasonable grounds for his diagnosis and without malice, he cannot be held liable in damages by his patient, even though he is mistaken in his diagnosis and has reported that his patient was afflicted with a disease which in fact he did not have.

Society Proceedings

COMING MEETINGS

District of Columbia, Medical Society of, Washington, Dec. 1.
Hawaii, Medical Society of, Honolulu, Nov. 18-20.
Medical Association of the Southwest, Wichita, Kan., Nov. 22-24.
Mississippi Valley Medical Association, Chicago, Oct. 26-28.
Southern Medical Association, Louisville, Ky., Nov. 15-18.
Southern Minnesota Medical Association, Mankato, Nov. 29-30.
Virginia, Medical Society of, Petersburg, Oct. 26-29.
Western Surgical Association, Los Angeles, Calif., Dec. 3-4.

AMERICAN ASSOCIATION OF OBSTETRICIANS, GYNECOLOGISTS AND ABDOMINAL SURGEONS

Thirty-Third Annual Meeting, held at Atlantic City, N. J., Sept. 20-22, 1920

(Concluded from page 1089)

Enuresis

DR. JOHN W. KEEFE, Providence, R. I.: Enuresis is a psychophysiologic impression made on the brain. Heredity undoubtedly plays an important rôle. These patients have a neurotic, unstable nervous system accompanied many times by mental retardation. Psychotherapy, mental suggestion and education of the subconscious mind should supplement any other form of treatment. In a word, the cure is the result of the mental awakening and stabilizing of the brain cells that control the act of micturition.

The Female Pelvic Ureters

DR. DAVID W. TOVEY, New York: Palpation of the ureters should be a part of every vaginal examination. Ureteritis, because of the nerves irritated, may simulate disease of any of the abdominal organs. Palpation will make the diagnosis.

Pseudocholecystitis

DR. HAROLD D. MEEKER, New York: The occurrence of adventitious bands in the upper abdomen has been estab-

lished beyond question. These bands give rise to definite symptoms. The gallbladder is the viscus most frequently involved; the resulting symptoms simulate a cholecystitis. Plastic surgery has given definite relief. The frequency with which adventitious bands in other parts of the abdomen coexist with those of the upper abdomen emphasizes the importance of a thorough search of the entire gastro-intestinal tract for abnormal bands and fixed points.

Double Flap Low Cesarean Section Results

DR. THURSTON SCOTT WELTON, Brooklyn: As a result of the findings in a series of fifty-five cases, I have concluded that the double flaps and low incision offer great protection against extension of infection to the peritoneum from an infected uterus. This should be the operation of choice in all potentially infected cases. This fact, also, should extend the field for cesarean section to include cases of long labor with the membranes ruptured and potentially infected from frequent vaginal manipulation in which most men would elect to perform a craniotomy on a living child rather than a classical section. The double flaps, likewise, so completely peritonealize the uterine wound that adhesions and postoperative disturbances are greatly minimized.

Pyelitis in Pregnancy

DR. GREER BAUGHMAN, Richmond, Va.: Three cases of pyelitis complicating pregnancy were treated with pelvic lavage. Living babies were born in two cases in which labor was induced at a selected time, while in the case in which labor began before the time set for its induction, the child died. With the exception of a few treatments, the patients after the first reaction showed marked improvement in symptoms. In all of the cases the right pelvis was primarily involved. In two the bladder was early involved; in one the bladder signs were not prominent. *Bacillus coli* was the exciting cause of two, *Staphylococcus albus* of the third. It was found possible to irrigate these patients within two weeks after the time of their delivery. None had any rise of temperature during the puerperium.

Borderline Carcinoma of Cervix and Its Treatment

DR. EDWARD A. WEISS, Pittsburgh: We have found that preliminary preoperative rest in bed for several days results in a marked diminution in the size of the diseased cervix, and a decidedly less thickening and fixation of the broad ligaments, proving that the fixation was inflammatory rather than malignant invasion of the lymphatics of the broad ligaments. We have frequently found that the supposedly inoperable case is really operable or on the borderline. During the period of rest in bed, more careful study of the patient's resistance can be made; and, should radical treatment follow, the condition of the patient is greatly improved and offers a better operative risk. In the borderline cases, the improved Byrne cautery technic, which is virtually the first stage of the Werder radical igni-extirpation, has given the best results; and while only a few so-called permanent or five year cures were obtained, yet we have had several instances of complete freedom from symptoms for periods of from three to five years. In a small series of cases, radium has proved to be a most valuable adjunct, both as to immediate and remote results. To say that radium used in the cervix is harmless is not in accordance with facts. Cancer of the cervix is still to be classed as an operative condition when discovered early and while the patient is a good risk. When a doubtful borderline condition is presented, treatment by radium is advisable, and the question of subsequent operation should be decided by the reaction obtained; but if operation is contraindicated by age, general condition, heart, kidney or blood vessels, radium alone should be used.

Splenic Leukemia Associated with Pregnancy

DR. GEORGE W. KOSMAK, New York: Leukemia complicating pregnancy has been reported in twelve cases, including two of my own, in which a fairly definite diagnosis from the blood picture was made. With the exception of Paterson's patient, all were multiparas. A possible hereditary history is mentioned in only one case. In the majority of cases the woman survived only a short time after labor. In every instance but one (my case) in which the definite diagnosis is presented the splenomedullary type of the disease was observed. The leukemia itself does not therefore appear to be a deterrent factor to conception. Probably a considerable number of cases of marked anemia in which no satisfactory blood count has been made may have been true instances of this disease. The occurrence of pregnancy in this disease indicates a most unfavorable outlook for the mother, and conception must, therefore, not be allowed to take place when the condition is suspected. The prognosis is undoubtedly worse in the pregnant than in the nonpregnant, and whether the association is accidental or not is immaterial. When the disease is already present, abortion seems to be the rule, with a rapidly progressing course and a fatal issue. It is necessary to distinguish between the acute and chronic forms of leukemia. Pregnant women may contract a rapidly fatal leukemia, although it seems possible that the disease was present in a milder form in many of these patients before their last and usually fatal pregnancy occurred.

Benign Mammary Tumors and Intestinal Toxemia

DR. WILLIAM SEAMAN BAINBRIDGE, New York: There are definite abnormal conditions of the breast tissue due to intestinal toxemia. Under medical treatment an appreciable number of these patients are cured. A preliminary lessening of the general toxic condition of the patient materially aids the surgeon in determining the true benign neoplasm, and saves a considerable amount of recoverable breast tissue too often unnecessarily sacrificed. Surgical procedure frequently is required for the correction of the intestinal stasis and the removal of the cystoma or the adenoma before the indurated, lobulated tissue resumes a healthy gland condition and the breast is brought back to normal.

Fibroma of Ovary

DRS. EDMUND D. CLARK and WILLIAM E. GABE, Indianapolis: The diagnosis is dependent solely on microscopic examination. In the presence of a hard, unilateral, movable tumor with ascites, when the more common causes of ascites can be ruled out, ovarian fibroma is highly probable. The treatment is operation; the prognosis, good.

Some Indications for Hysterectomy

DR. JAMES F. BALDWIN, Columbus, Ohio: Many women suffer from chronic uterine hyperplasia, frequently complicated with laceration of the cervix, retroversion, a tendency to procidentia, with leukorrhea, dyspareunia, sterility, backache and general ill health. In this type of disease no treatment effects a cure, and little can be accomplished in palliation. Other women suffer from imperfect development of the uterus, with sterility, painful menstruation, and other disturbances. A radical cure may be effected in these cases by hysterectomy, but saving the appendages so as to obviate the symptoms of the menopause, except as to the absence of menstruation.

Preparation of Skin for Operation, with Special Reference to Use of Picric Acid

DR. H. W. HEWITT, Detroit: Picric acid is astringent, and deeply penetrates the corneous layer of the skin. Its only disadvantage has been in staining the skin, an effect that will last from twelve to eighteen days, but may be removed by the application of a 5 per cent. solution of sodium carbonate, or a 25 per cent. solution of ammonia in ethyl alcohol, provided this is done immediately after the operation is finished. The picric acid solution used in our clinic was made by saturating a 70 per cent. ethyl alcohol solution with picric acid, which made a 6 per cent. solution. The merits of this method of preparation are many, namely, it is simple; it is cheap; it is efficient; it does not injure the skin in any way, and may be used on any part of the body; it does not injure the peritoneal coat of the intestine; it contains no proprietary preparation, and its antiseptic strength may be standardized.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

September, 1920, **160**, No. 3

*Blood Sugar Tolerance Test as Aid in Diagnosis of Gastro-Intestinal Cancer. J. Friedenwald and G. H. Grove, Baltimore.—p. 313.
*Diagnosis and Treatment of Pulmonary Tuberculosis. L. Brown, Saranac Lake, N. Y.—p. 324.
*Endothelial Leukocytes in Urine Suggesting Typhoid Infection. O. H. P. Pepper, Philadelphia.—p. 336.
*Protein Hypersensitveness in Children. K. D. Blackfan, Baltimore. —p. 341.
*Colon in Connection with Chronic Arthritis (Arthritis Deformans). A. Bassler, New York.—p. 351.
*Improvement in Exophthalmic Goiter Subsequent to Severe Focal Infection. T. L. Squier, Ann Arbor, Mich.—p. 358.
*Glucose Tolerance Test in Chronic Vascular Hypertension. J. P. O'Hare, Boston.—p. 366.
*Chronic Arthritis. G. Draper, New York.—p. 370.
*Interperitoneal Adhesions; Origin and Prevention. R. J. Behan, Pittsburgh.—p. 375.
Present Status of Empyema. A. O. Wilensky, New York.—p. 384.
*Substernal Goiter, with Pressure Symptoms. B. K. Rachford, Cincinnati.—p. 410.
*Case Showing Relation Between Occupation and Certain Case of Bronchial Asthma. J. Rosenbloom, New York.—p. 414.
*Experimental Chronic Suppurative Arthritis. J. W. McMeans, Pittsburgh.—p. 417.
*Blood Cholesterol in Gastro-Enterologic Cases. T. G. Schnabel, Philadelphia.—p. 423.
*Hyperacidity. M. E. Rehfuss and P. Hawk, Philadelphia.—p. 428.

Blood Sugar Test in Cancer.—The blood sugar tolerance was studied by Friedenwald and Grove in thirtytwo cases of carcinoma of the gastro-intestinal tract. All of the cases were typical of this disease. Seventeen patients were operated on and the diagnosis was thus confirmed, and in the remaining cases there were definite palpable abdominal masses in addition to the usual physical signs present in this affection; and the examination of the gastric contents as well as roentgenoscopy and final outcome presented confirmatory evidence in every instance. In addition, blood sugar tolerance tests were made in 3 cases of uterine carcinoma; 1 case each of breast cancer, carcinoma of the prostate and spine and uterine fibroid; 2 cases each of sarcoma, syphilis of the stomach and chronic appendicitis; 8 cases of peptic ulcer; 3 cases of diarrhea and dysentery; 8 cases of achylia gastrica and chronic gastritis; 4 cases of cholelithiasis; 11 cases of enteroptosis; 5 cases each of nervous dyspepsia and of intestinal stasis and mucous colitis, making 88 cases in addition to 4 perfectly normal individuals studied for purposes of comparison. In carcinoma of the gastro-intestinal tract a rather characteristic curve of sugar tolerance which differs somewhat from that observed in carcinoma of other regions of the body was present. The curve of this affection usually presents a high sugar content even in the fasting state, followed by an initial rise up to 0.24 per cent. or higher within forty-five minutes after the ingestion of the dextrose remaining at this level for at least 120 minutes, and at no time during this period falling below 0.20 per cent. The test is rather distinctive, so that it may render valuable assistance in a large proportion of cases as a means of differential diagnosis between carcinoma and other diseases of the gastro-intestinal tract. As positive curves occur equally whether cachexia exists or not, or whether the extent of the involvement be slight or great, the authors are under the impression that the results may be quite definite even in the early cases of the disease.

Food in Pulmonary Tuberculosis.—Speaking of the food requirements in the treatment of pulmonary tuberculosis, Brown says that it seems that extra meat is necessary until the patient has a proper amount of protein in his body. If excess of calcium salts are necessary no food furnishes such an amount of the dietary essential as milk, combined, too, probably in such a way that it can be used at once by the body. The fact that the calcium content of the blood serum does not vary in pulmonary tuberculosis is no argument against its use. Is it not possible that with an increased amount of calcium in food the blood may pass on to the tissues or scar formation an increased amount of calcium? With a judicious use of milk there is no call for any anxiety about a lack of fat-soluble in the diet of these patients. Cod liver oil and butter fats contain it in large quantities, while all vegetable oils and fats are deficient in it or lack it entirely. The water-soluble B is practically always supplied in sufficient quanities.

Endothelial Leukocytes in Urine in Typhoid.—In a case reported by Pepper the diagnosis of infection with the typhoid bacillus was reached as a result of the finding in the urine of numerous cells which closely resembled the endothelial leukocytes so regularly seen in the various lesions of typhoid fever. Pepper suggests that this observation may be additional evidence of the universality of the reaction to the typhoid bacillus and of its possible value in the recognition of unsuspected infection with this organism.

Protein Hypersensitiveness in Children.—According to Blackfan, successful therapeutic results may be expected in patients who are unable to take various foods without the development of eczema, urticaria, asthma, etc., if the patients are hypersensitive to protein and if the treatment is consistently and thoroughly carried out. The treatment may be carried out by absolutely omitting the protein from the diet or by the process of desensitization. In certain cases a combination of these methods may be used.

Colon Infection in Arthritis.—Having found that colon infection often is responsible for polyarthritis, Bassler has treated patients by a diet high in calories, but low in calcium, and by strains of viable *Bacillus coli* administered by rectum.

Complicating Infections of Thyroid and Hyperthyroidism.—Two cases of hyperthyroidism are cited by Squier in which complicating infections first caused a marked increase in the severity of the thyroid symptoms later followed, after the acute infection had subsided, by striking improvement, if not cure. He suggests that the improvement is due to actual loss of secretory tissue through postinfectious sclerosis of the gland.

Glucose Tolerance Test in Vascular Hypertension.—The results of twenty-five glucose tolerance tests done in twenty-three cases of chronic vascular hypertension are recorded by O'Hare. The results suggest that patients with chronic vascular hypertension are potential nephritics and potential diabetics.

Chronic Arthritis.—Draper is of the opinion that chronic arthritis represents a very profound constitutional disturbance in which forces analogous to those concerned in acromegaly and thyroid insufficiency are concerned. The family and personal history which arthritic patients give of hives, angioneurotic edema (bee string effects) and asthma, and, in addition, the well known feature of joint involvement seen in serum disease, all seem to indicate that there is a relationship between this whole group of phenomena and chronic arthritis.

Boric Acid and Lanolin Paste to Prevent Interperitoneal Adhesions.—Behan has used a heated paste of 5 per cent. pure boric acid in lanolin in more than 300 abdominal sections and has noted no bad results from its use. In fact, after its use patients claim they have very little pain. He has also found it very beneficial in those patients who have developed adhesions around the cecum and ascending colon, either from a chronic appendicitis or as the results of some congenital defect by which stasis is present in the colon, and has resulted in a perityphlitis and pericolonic adhesive formation. In such patients he uses it very liberally and has had uniformly good results. He has also used it in several cases of recurring interperitoneal adhesions with gratifying absence of the former symptoms. The presence of adhesions between the omentum and adjacent viscera or the omentum and the abdominal wall, where a previous operation has been done, is also a suitable indication for the use of lanolin and boric acid. In using lanolin and boric acid, however, precaution must be taken that the lanolin secured is as nearly pure as possible. It should also be sterilized three times on three different days, each time for a half hour at a temperature of over 212 F. Before being used it should be heated so that it is absolutely fluid; in fact, it should be applied very hot to

the peritoneal surface. In this way it dries out the moisture of the peritoneum and at the same time sticks very firmly to it. It should not be applied on a moist surface. The bowel should be dry before its application. Behan has also used lanolin and boric acid rather successfully in tendon implantation and transference, also in cases in which it was necessary to liberate tendons from adjacent strictures, the adhesions being due either to traumatism or to tenosynovitis. In the presence of inflammation it does not act, nor does it absolutely inhibit adhesions between two adjacent surfaces, which are denuded of their serosa and are held in contact. Therefore, it should be the attempt of the surgeon to see that no two surfaces denuded of serosa come into and remain in permanent contact. Drugs which have an active peristaltic action, either strychnin or eserin salicylate, should be exhibited in quantities sufficient to produce active peristalsis. Magnesium sulphate is also very useful for this purpose. Any cathartic, stimulating intestinal peristalsis may be exhibited with profit. As a further aid to peristalsis, where there is no danger of spreading an inflammation, apply heat to the abdomen in the form of hot-water bottles, electric pads, etc., which are very beneficial in sluggish peristalsis. Diathermia is one of the most recent but perhaps one of the best means of stimulating peristalsis after operation.

Substernal Goiter with Pressure Symptoms.—Rachford's patient was treated successfully, so far as relief of symptoms was concerned, by rest, roentgen ray, 15 drops of tincture of digitalis, three times a day, and a capsule containing 2½ grains of the neutral bromid of quinin, 1 grain extract of ergot and 1/30 grain extract of belladonna, three times a day, for a long period of time. At rare intervals this treatment has been interrupted for a period of a few weeks.

Occupation and Bronchial Asthma.—Rosenbloom reports the case of a baker sensitive only to proteins of the rye and to wheat globulin, the other proteins of wheat not causing any reaction.

Chronic Suppurative Arthritis.—A streptococcus of fairly low pathogenicity but of rather high invasive quality, which possesses the ability to attack the joints of rabbits and produce in them a chronic suppurative arthritis was used by McMeans. This quality of attacking the joints was not lost after a period of three months' artificial cultivation. Although joints were mainly attacked, certain other tissues were involved an appreciable number of times. The organism was of human source, isolated from the submaxillary gland.

Blood Cholesterol in Gastro-Intestinal Cases.—Sixty cases presenting gastro-enterologic aspects were studied by Schnabel for their blood cholesterol content. It seems to offer little diagnostic help in gastro-enterologic cases.

Hyperacidity.—Evidence is deduced by Rehfuss and Hawk to prove that the normal individual elaborates acid figures as high as those commonly associated with pathologic syndromes. There are normal individuals, approximately 40 per cent., who constantly show the acid titration findings of so-called hyperacidity. The introduction of very high acidities (0.5 per cent. hydrochloric acid) is followed by the activity of the autoregulatory mechanism which brings about a gastric optimum.

American Journal of Ophthalmology, Chicago

September, 1920, **3**, No. 9

Multiple Aneurysms of Retinal Arteries. F. M. Fernandez, Havana.—p. 641.
Radium for Cataract. W. S. Franklin and F. C. Cordes, San Francisco.—p. 643.
Three Cases of Foreign Bodies in and About the Eyeball. F. T. Tooke, Montreal.—p. 648.
Recurrent Retinal Hemorrhages. W. Zentmayer, Philadelphia.—. 652.
Recurrent Retinal Hemorrhage of Adolescence. A. E. Davis, New York.—p. 657.
Ocular Tuberculosis. F. B. Bogardus, Rugby, N. D.—p. 661.
Intradural Tumors of Optic Nerve; Report of Case. E. Scott and F. F. Schmidt, Columbus, Ohio.—p. 665.
Tonometry and Prevention of Glaucoma. E. J. Brown, Minneapolis.—p. 669.
Etiology of Glaucoma. H. E. Smith, New York.—p. 673.
Glaucoma Question. M. Goldenburg, Chicago.—p. 678.
Basal Celled Epithelioma of Conjunctiva. D. H. Coover, Denver.—p. 683.
Case of Cryptophthalmia. S. N. Key, Austin, Texas.—p. 684.
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Toric Trial Lenses. R. W. Place, Somerville, Mass.—p. 686.

Archives of Dermatology and Syphilology, Chicago

October, 1920, **2**, No. 4

*Etiology of Xanthoma Multiplex. F. S. Burns, Boston.—p. 415.
Two Unusual Cases of Darier's Disease. F. Wise and H. J. Parkhurst, New York.—p. 430.
*Lupus Erythematosus and Focal Infection. M. B. Hartzell, Philadelphia.—p. 441.
Treatment of Generalized Psoriasis. W. H. Mook, St. Louis.—p. 447.
*Menace in Low Protein Diet. J. C. Michael, Houston, Texas.—p. 455.
*Use of Gentian Violet as Restrainer in Isolation of Pathogenic Molds. D. L. Farley, Philadelphia.—p. 459.
Cultivation of Epidermophyton Inguinale. D. L. Farley, Philadelphia.—p. 466.
*Dissemination of Spirochaeta Pallida from Primary Focus of Infection. W. H. Brown and L. Pearce, New York.—p. 470.
Clinical Approach to Syphilis; Suggestions for Its Revival and Development. J. H. Stokes, Rochester, Minn.—p. 473.
*Reinfection and Curability in Syphilis. L. Jacobi, New York.—p. 493.
Experience with Sodium Diarsenol. F. R. Wright and H. E. Michelson, Minneapolis.—p. 499.
*Action of Radium on Variety of Cutaneous Conditions. D. W. Montgomery and G. D. Culver, San Francisco.—p. 500.

Increased Cholesterol Cause of Xanthoma Multiplex.—It seems to Burns that xanthoma multiplex is a dermatosis whose origin lies in the increased amount of cholesterol in the blood, the skin lesions of which are caused by its deposition in this tissue where it induces a peculiar secondary connective tissue hyperplasia. In a case cited the cholesterol content in this case was found to be considerably increased under normal mixed diet, under low fat diet and under high fat diet. Under a high fat diet the increase was excessive. Cholesterol was also found in large quantities in all xanthoma lesions examined.

Lupus Erythematosus and Tooth Abscess.—A case is cited by Hartzell which suggested to a considerable degree the possibility of a relationship between the skin lesion and an abscessed tooth.

Danger of Low Protein Diet.—Michael cited a case which exemplifies three important facts: (1) the inadvisability of instituting a diet rich in carbohydrates without previous knowledge of the patient's ability to take care of it; (2) that absence of glycosuria is not always an index of safety; and (3) that a glucose tolerance test may indicate a state of grave danger to the patient, which may be aggravated unwittingly by a rich carbohydrate diet, such as is usually instituted when psoriatics are placed on low protein intakes. Most patients on a low protein diet, receive an increased carbohydrate ration. A diet rich in carbohydrates is contraindicated in patients who present a prediabetic condition. Patients who have psoriasis or other dermatoses, in which a low protein diet is often resorted to, may also be prediabetics. Therefore, before a special diet, low in protein and rich in carbohydrates, is instituted, the sugar tolerance of the patient should be ascertained.

Isolation of Molds with Gentian Violet.—A dilution of gentian violet of 1:500,000 in solid (Sabouraud's proof) mediums will inhibit the growth of the gram-positive bacteria. Farley has used a gentian violet maltose medium (1:250,000 and 1:500,000) in the isolation of approximately twenty strains of pathogenic molds with apparently good results.

Dissemination of Spirochetes from Primary Lesions.—Systematic determination of the presence of spirochetes in the inguinal lymph nodes and the circulating blood of rabbits at various intervals after scrotal or testicular inoculation was made by Brown and Pearce. It would appear, that there is probably no appreciable time during which a syphilitic infection can be regarded as confined to the focus of entry but that, immediately infection takes place, the spirochetes begin to multiply and invade the surrounding tissues, gaining access to both the lymphatics and the blood stream, and are widely distributed over the body even before an initial lesion can be detected. The early appearance of a distinctive lesion at the site of infection and the lapse of time required for the development of generalized lesions are a sequence in localization and concentration of spirochetes at given points rather than indications of the time required for their dissemination.

Reinfection in Syphilis.—Jacobi maintains that the occurrence of reinfection in syphilis may be accepted as an established fact. Reinfection, however, is by no means evidence of curability.

Radium Therapy in Diseases of Skin.—Cases are cited by Montgomery and Culver to give some idea of the wide application of this remedial agent in diseases of the skin.

Archives of Internal Medicine, Chicago

Sept. 15, 1920, **26**, No. 3

*Clinical and Anatomic Relations in Chronic Nephritis. E. Moschcowitz, New York.—p. 259.
*Case of Massive Lipoma of Mediastinum. R. S. Leopold, Philadelphia.—p. 274.
*Narcotic Drug Addiction. Formation of Protective Substances Against Morphin. E. J. Pellini and A. D. Greenfield, New York.—p. 279.
*Margin of Safety of Intravenous Digitalis in Cats. S. A. Levine and T. D. Cunningham, Boston.—p. 293.
*Diagnosis and Treatment of Hypothyroidism. N. W. Janney and H. E. Henderson, Santa Barbara, Calif.—p. 297.
*Effect of Ether Anesthesia on Alkali Reserve. W. S. Carter, Galveston, Texas.—p. 319.
*Studies on Blood Sugar; Effect of Blood Constituents on Picrate Solutions. D. M. Cowie and J. P. Parsons, Ann Arbor, Mich.—p. 333.
*Paralysis of Left Recurrent Laryngeal Nerve Associated with Mitral Stenosis. J. Garland and P. D. White, Boston.—p. 343.
*Blood Picture Before and After Goetsch Epinephrin Test. R. M. Trott, Baltimore.
Possible Pathogenicity of Bacillus Botulinus. R. B. Edmondson, L. T. Giltner and C. Thom, Washington, D. C.—p. 357.
*Study of Renal Concentration Power for Uric Acid in Early Chronic Interstitial Nephritis. H. A. Higley and R. Upham, Brooklyn.—p. 367.
Hymenolepsis Nana; Possible Cercocystis Stage. A. Goldman, St. Louis.—p. 373.

Chronic Nephritis Is Arteriosclerosis.—The conception is set forth by Moschcowitz that chronic nephritis is essentially a vascular disease, beginning in the capillaries (glomeruli) and extending therefrom to the larger blood vessels. In this light chronic nephritis and arteriosclerosis are one and the same lesion. The lesions in albuminuric retinitis are analogous morphologically with those of chronic nephritis. The presence or extent of albuminuria, the presence or degree of hypertension bears no consistent relationship to the degree or variety of anatomic destruction of the kidney. The probability is very strong that clinically cases of chronic nephritis begin as cases of "essential hypertension." The only variety of chronic nephritis that can reasonably be termed an end result is the so-called "contracted" kidney. The most important extrarenal factor in modifying renal insufficiency in "arteriocapillary fibrosis" is circulatory insufficiency. Other things being equal, improvement in circulatory insufficiency is coordinate with improvement in renal insufficiency, and vice versa. There is a striking parallelism between the signs of renal insufficiency in arteriocapillary fibrosis associated with hypertension and those noted in frank valvular lesions of the heart. Decompensated phases of valvular heart disease may show evidences of renal insufficiency indistinguishable from those witnessed in chronic nephritis. As a consequence of his studies the following clinical pathologic classification of chronic nephritis is submitted by Moschcowitz: 1. Arteriocapillary fibrosis. 2. Chronic glomerulonephritis of subacute bacterial endocarditis. 3. Amyloid kidney. 4. "Chronic parenchymatous nephritis" or nephrosis (Epstein).

Lipoma of Mediastinum.—The lipoma in Leopold's case weighed 17 pounds 6 ounces. A persistent hollow cough, increasing in severity and accompanied by an occasional shortness of breath, and later a pronounced dyspnea, constituted the earliest referable symptoms. Yet at nine months, physical examination and roentgen-ray examination demonstrated a tumor filling about four-fifths of the chest. There was no pain, no positive emaciation or cachexia, no metastasis, no dysphagia, no aphonia.

Formation of Protective Substances Against Morphin.—The definite conclusion drawn by Pellini and Greenfield from their work, which they believe is the only work of this nature directly testing the question of immunity acquired by the human morphin addict, is that no substance is formed in the blood serum of a human being who has acquired a high tolerance to morphin which is capable of conferring any degree of immunity to the toxic action of morphin on an animal into which it is injected. Likewise they have been able to show that the blood of a tolerant animal does not contain any protective substance against morphin.

Intravenous Digitalis Therapy.—The average margin of safety (the difference between the minimum lethal dose and the minimum toxic dose) of various digitalis preparations when given intravenously to cats Levine and Cunningham found was 48 per cent. The rapidity with which intravenous digitalis acts is similar to strophanthin, and does not differ appreciably no matter what preparation is employed. The risk in intravenous digitalis therapy appears from these experiments to be as great as intravenous strophanthin.

Hypothyroidism.—Janney and Henderson are of the opinion that latent hypothyroidism is more frequent than generally supposed, as among eighteen consecutive thyroid cases, it was present in twelve, four being cases of dysthyroidism and only one case presenting classical myxedematous symptoms. Analysis of clinical data shows the following to be present in more than 50 per cent. of the cases: history of obesity, particularly in early life, mental symptoms, marked liability to contract infections, hair anomalies, dry, harsh skin with pigmentation and atrophy, cold extremities and cold skin generally, obesity, descreased size of thyroid, subnormal temperature, pulse and respiration occur most frequently, being found in 81 per cent. of the authors' cases. Attention is called to the diagnostic value of lymphocytosis and mononucleosis in obscure thyroid cases. The basal metabolic rate is of great value in diagnosis and treatment of hypothyroidism, but cannot be considered an absolute criterion. The blood glucose tolerance test is abnormal in respect to the height of the curve and delayed return to normal level in the majority of cases of thyroid disease, but is only diagnostic of endocrine disease in general. There is no constant relation demonstrable between the blood sugar curve and the metabolic rate in thyroid disease. The blood glucose curve is, however, of confirmatory value in the diagnosis of obscure thyroid cases. Estimation of the nitrogen balance in two cases of obscure hypothyroidism showed an inability to retain nitrogen, this being further evidence of the synthetic function of the thyroid gland, as further developed in the theoretical consideration. Treatment of hypothyroidism the authors claim is best carried out with Kendall's thyroxin and controlled by estimation of the basal metabolic rate.

Effect of Ether on Alkali Reserve.—Carter found that ordinary ether anesthesia, without any of the contributing conditions that attend surgical operations, causes a distinct decrease in the alkali reserve. The decrease in carbon dioxid combining capacity of the blood of dogs is usually from 6 to 10 volumes per cent. There is comparatively little diminution during the first hour but it occurs almost entirely after that time and is in direct proportion to the duration of the anesthetic. There is an actual decrease in the alkali reserve and not an apparent condition due to hyperpnea. The latter is most marked early in the anesthesia but there is little or no dealkalization during the first hour. The usual decrease occurs when anesthesia is maintained by artificial respiration which provides a uniform respiratory volume; also when an animal breathes an atmosphere containing 3 per cent. of carbon dioxid in which ether has been vaporized. Breathing an atmosphere containing 16 per cent. of oxygen and 3.5 per cent. of carbon dioxid for three hours does not diminish the alkali reserve. The greatest decrease in the alkali reserve produced by ether anesthesia occurs at the end of the anesthesia and remains at that level for from one-half to one hour after the anesthesia, at a time when there is decreased respiratory activity. Following this brief after effect, there is a rapid increase in the alkali reserve and it returns to the normal in from one to two hours after the anesthesia. Carter's experiments were made on dogs. He describes the apparatus used.

Effect of Blood Constituents on Picrate Solutions.—The experiments detailed by Cowie and Parsons tend to show that blood contains substances other than sugar which induce a color change in the picrate solution employed in the modified Lewis-Benedict blood sugar method. Under normal conditions, these substances may not interfere with the established normal range for this method. Under pathologic conditions several of these substances may interfere. Those which show the most marked influence are: epinephrin, acetone and diacetic acid. Creatinin may interfere, but does so in a less marked degree if the comparative sensitiveness of the picrate solution to these substances is considered.

Paralysis of Recurrent Laryngeal Nerve.—A series of nine cases of paralysis of the left recurrent laryngeal nerve associated with mitral stenosis is analyzed by Garland and White. The record of but sixty-one cases in the literature, not including these nine cases, indicates that the condition is probably frequently overlooked.

Effect of Epinephrin Test on Blood Picture.—The administration subcutaneously of from 4 to 8 minims of epinephrin Trott claims will quickly produce a rise in the leukocyte count and cause an absolute lymphocytosis in hyperthyroid individuals. From this experiment, it is concluded that in toxic goiter an increase in the lymphocytes is not always present, especially in the borderline cases. A normal differential count is often found and in some cases a polymorphonuclear leukocytosis exists.

Reduced Renal Function.—In studying the results of their investigation, Higley and Upham found that many cases of reduced renal function for uric acid cannot be accounted for from a clinical standpoint by a diagnosis of nephritis. Thus many cases in which a clinical diagnosis of nephritis is not possble, show such a reducton. It is an early sign of kidney damage, often occurring before a clinical diagnosis of an anatomic nephritis can be made, hence from the standpoint of treatment and prognosis, the cases of the reduced renal function must be ascertained and corrected.

Archives of Ophthalmology, New York

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Effects of Various Toxemias on Eye. W. H. Wilmer, Washington, D. C.—p. 461.
Fusiform Bacilli on Conjunctiva and in Meibomian Glands. S. R. Gifford, Omaha.—p. 477.
Eye and Endocrine System. P. Fridenberg, New York.—p. 485.
Medical Social Service and Follow-Up Work in Eye Hospital. G. S. Derby, Boston.—p. 495.
Uveitis Dependent on Focal Infection in Appendix. H. H. McGuire, Winchester, Va.—p. 500.
Results Obtained with Müller's Resection of Sclera in Detachment of Retina Due to High Myopia. E. Török, New York.—p. 506.
Successful Removal of Orbital Portion of Optic Nerve for Primary Intradural Tumor, with Preservation of Eyeball and Motility by Krönlein Method. R. G. Reese, New York.—p. 515.
Case of Cavernous Lymphangioma of Orbit. H. S. Gradle, Chicago. —p. 520.
Capsulatomy by New Procedure. A. E. Ewing, St. Louis.—p. 522.

Arkansas Medical Society Journal, Little Rock

September, 1920, **17**, No. 4

"The Base Hospital." F. Vinsonhaler, Little Rock.—p. 85.
Field Hospital Work. W. A. Snodgrass, Little Rock.—p. 90.
Evacuation Hospital. M. D. Ogden, Little Rock.—p. 94.
Experiences of a Naval Medical Officer. L. Humphreys, Washington, D. C.—p. 98.

Journal of Cancer Research, Baltimore

April, 1920, **5**, No. 2

*Lymphocytes and Cancer Immunity. F. Prime, New York.—p. 105.
*Fluctuations in Induced Immunity to Transplanted Tumors. F. D. Bullock and G. L. Rohdenburg, New York.—p. 119.
*Fluctuations in Concomitant Immunity. F. D. Bullock and G. L. Rohdenburg, New York.—p. 129.
*Basal Cell Epithelioma of Rat. D. H. Morris, New York.—p. 147.
Four Cases of Beginning Squamous Cell Carcinoma of Cornifying Type. R. C. Whitman, Boulder, Colo.—p. 155.
*Calcium Content of Blood with Special Reference to Cancer. O. Krehbiel, New York.—p. 199.

Lymphocytes and Immunity to Tumor.—Prime found that in animals which are naturally resistant or artificially immune to certain strains of rat carcinoma and sarcoma, a marked reducation in the circulating lymphocytes produced by roentgen-ray treatment is not followed by an appreciable decrease in immunity to tumor inoculation.

Fluctuations in Induced Immunity to Tumors.—The object of the experiments reported on by Bullock and Rohdenburg was to establish the fact that fluctuations in induced immunity are a frequent occurrence, and to determine, if possible, the factors responsible for them so that in the future they might be eliminated. It is evident from the data presented that variations of marked degree do occur in the percentages of induced immunity obtained after the commonly accepted methods of procedure. The factor responsible for these variations is at first glance not quite evident. Variations in technic, particularly in minor alterations in the dosage of the immunizing material, have been eliminated. Bacterial contamination, with a possible destruction of the inoculated fragments of tumor, is also not sufficient to explain the variations noted, since fluctuations occurred when both immunizing tissue and tumor were sterile. The type of tissue used for immunization cannot be held responsible, for the variations were noted with blood cells, spleen emulsion, and fetal skin emulsion. Epithelial and connective tissue tumors of both the rat and the mouse showed the variations. However, when the purity of breed of the experimental animals was assured then the variations were of such minor type that they could be disregarded. The most plausible explanation, therefore, is that the biologic relationship between tumor, immunizing material, and host is a very delicate one and that unrecognizable differences between different strains of animals are sufficient to create the wide variations noted.

Concomitant Immunity to Tumors.—Fluctuations in concomitant immunity do occur. The experiments recorded in this paper were planned to determine the frequency of this occurrence and to discover, if possible, the factor or factors which are responsible for these variations. It is evident that fluctuations in concomitant immunity frequently occur with both epithelial and connective tissue neoplasms in mice and rats. Analogous variations in induced immunity were found to be due to differences in the host strain. This, however, is not true of concomitant immunity. Neither can the variations be connected with similar fluctuations in either induced or natural immunity, apparently somewhat different forces being operative in each instance. Variations in technic have been eliminated. By exclusion, therefore, the vacillations must be due to differences in the tumor itself. Concomitant immunity occurred in these experiments most often when the individual tumor grew slowly but steadily, and least often when the tumor grew rapidly. Whatever the cause of the variations noted, their presence is proof of the inconstancy of tumors as immunizing agents.

Basal Cell Epithelioma.—The tumor described by Morris arose spontaneously in a young male rat, about 5 months old, weighing 60 gm. This tumor is the only basal cell epithelioma that has been found in an animal. Its sluggish growth rate and ability to lie dormant for long periods is quite analogous to the behavior of the same type of tumor in man.

Blood Calcium Values in Various Diseases.—The blood plasma calcium content was determined by Krehbiel in thirty-four cases of malignant disease, in six of benign tumors, in eleven of thromboangiitis obliterans, and in twenty-six miscellaneous cases. In cancer the average calcium values were within the figures generally accepted as normal, and no characteristic concentration accompanied any given type or location of neoplasm. In benign tumors the results were similar. The average calcium figure for thromboangiitis was within normal limits, while the variations in individual cases would indicate that calcium metabolism has no connection with this disease. In accordance with the results of other authors, low calcium values were obtained in severe nephritis, in eclampsia, and in tetany.

Journal of General Physiology, Baltimore

Sept. 20, 1920, **3**, No. 1

Photochemistry of Visual Purple. Kinetics of Decomposition of Visual Purple by Light. S. Hecht, Omaha.—p. 2.
Mechanism of Injury and Recovery. W. J. V. Osterhout, Cambridge, Mass.—p. 15.
*Inhibitory Action of Paratyphoid Bacilli on Fermentation of Lactose by Bacillus Coli. I. T. Smith and D. E. Smith, Princeton, N. J.— p. 21.
*Comparative Studies on Respiration. Comparison of Production of Carbon Dioxid by Penicillium and by Solution of Dextrose and Hydrogen Peroxid. F. G. Gustafson, Cambridge, Mass.—p. 35.
*Dynamics of Nerve Cells. I. Temperature Coefficient of Neurogenic Rhythm of Heart of Limulus Polyphemus. W. E. Garrey, New Orleans.—p. 41.
*Dynamics of Nerve Cells. II. Temperature Coefficients of Carbon Dioxid Production by Heart Ganglion of Limulus Polyphemus. W. A. Garrey, New Orleans.—p. 49.
Rôle of Integumentary Pigment in Photoreception in Holothuria. W. J. Crozier, Chicago.—p. 57.
Studies in Dynamics of Histogenesis. Tension of Differential Growth as Stimulus to Myogenesis in Esophagus. E. J. Carey, Milwaukee. p. 61.
Ion Series and Physical Properties of Proteins. I. J. Loeb, New York. —p. 85.

Recovery of Transmissivity in Passive Ion Wires as Model of Recovery Processes in Irritable Living Systems. R. S. Lillie, Worcester, Mass.—p. 107.

Inhibitory Action of Paratyphoid Bacilli.—The experiments reported on by the Smiths support current theories which hold that the acid-producing and gas-producing entities in cultures are distinct.

Studies on Respiration.—Gustafson found that a neutral solution of dextrose and hydrogen peroxid acts like *Penicillium chrysogenum* in producing an increased amount of carbon dioxid on the addition of acid, but not on the addition of alkali.

Dynamics of Nerve Cells.—From the magnitude of the temperature coefficients and their variation with changes of temperature Garrey says it may be concluded that the rate of the heart beat is determined by alteration of chemical processes in the ganglion cells. Carbon dioxid formation in the cardiac ganglion was found by Garrey to run parallel to the rate of heart beat for different temperatures. The conclusion seems justified that the rate of cardiac rhythm depends on a chemical reaction in the nerve cells of the cardiac ganglion and that this reaction is associated with the production of carbon dioxid since the rate of beat and the rate of carbon dioxid production are similarly affected by changes in temperature.

Journal of Nervous and Mental Diseases, New York and Lancaster, Pa.

September, 1920, **52**, No. 3

*Mental Disturbances in Lethargic Encephalitis. I. Abrahamson, New York.—p. 193.
*Epileptic Seizures, Transient Hemiplegias and Papilledema in a Case of Doubtful Etiology. T. K. Davis, New York.—p. 233.
Anatomic Implications of the Introspective Psychology. H. I. Gosline, Boston.—p. 202.

Mental Disturbances in Lethargic Encephalitis.—The persistent sequence of severe intoxications and psychoses, the Korsakoff phenomenon and even the protracted recovery in lethargic encephalitis Abrahamson believes show that in addition to nutritive changes actual structural disturbances may also occur, a true inflammation of the brain cells, with destruction of the cellular processes.

Idiopathic Epilepsy.—Davis cites a case of idiopathic epilepsy in which numerous endocrine symptoms and signs were present.

Journal of Parasitology, Urbana, Ill.

September, 1920, **7**, No. 1

Wohlfahrtia Vigil (Walker) as a Human Parasite (Diptera-Sarcophagidae). E. M. Walker, Toronto.—p. 1.
New Cystophorous Cercaria from California. W. W. Cort, Baltimore, and Elinor B. Nichols, Berkeley, Calif.—p. 8.
Natural Occurrence of Herpetomonads (Leptomonads) in Blood of a Fish, Dentex Argyrozona, and Its Significance. H. B. Fantham and Annie Porter, Johannesburg.—p. 16.
Development of Gregarines and Their Relation to Host Tissues (III) in Gregarina Rigida (Hall) Ellis. M. W. Kamm.—p. 23.
New Nematode from Rat. S. Yokogawa, Formosa.—p. 30.
New Record of Taenia Confusa with Additional Notes on Its Morphology. A. C. Chandler.—p. 34.
Possible Intermediate Host of Fasciola Hepatica L. 1758 in North America. M. F. Body.—p. 39.
Dibothriocephalus Taenioides Leon. New Case in Roumania. N. Leon.—p. 43.
New Course for Migrating Ancylostoma and Strongyloides Larvae after Oral Infection. S. Yoshida, Osaka.—p. 46.

Journal of Urology, Baltimore

August, 1920, **4**, No. 4

*New Culture Method for Gonococcus. E. O. Swartz, Baltimore.—p. 325.
*Antiseptic Action of Local Anesthetics Against Staphylococcus Aureus and B. Coli. D. I. Macht and Y. Santani, Baltimore.—p. 347.
*Antiseptic Action of Benzyl Alcohol and Other Local Anesthetics Against Gonococcus. E. O. Swartz, Baltimore.—p. 355.
*Simplified Technic for Epididymectomy. D. N. Eisendrath, Chicago.—p. 363.
Changes in Acidity or Alkalinity of Urine Produced by B. Coli as Measured by Final Hydrogen Ion Concentration. A. T. Shohl, Baltimore.—p. 371.
*Passage of Bacteria from Urinary Bladder into Blood Stream. J. A. H. Magoun, Jr., Rochester, Minn.—p. 379.
Venereal Prophylaxis in Civilian Life. H. L. Sanford, Cleveland.—p. 383.
Case of Renal Tuberculosis Complicated by Inguinal Renal Fistula, Transverse Myelitis and Renal Calculus. J. D. Barney and W. J. Mixter, Boston.—p. 391.

Cultivating the Gonococcus.—As a result of his study, Swartz feels that in cultivating the gonococcus a very important factor is usually overlooked, not in compounding the medium, but in the method of growing the organism. This factor is the oxygen tension under which the organism is grown. Using the principle of reduced oxygen tension, Swartz has been able to grow very luxuriant gonococcus cultures on meat infusion hydrocele agar slants and on meat broth hydrocele mediums. The medium used was but a slight modification of that used by Wertheim in 1892 and a similar medium advocated by Young in 1900. The presence of reduced oxygen tension is essential to the profuse growth of the gonococcus. A reduction of 10 per cent. of normal atmospheric pressure is sufficient. Moisture is essential. A luxuriant growth of gonococcus can be obtained on a medium the reaction of which varies between p_H 6.6 in the acid range and p_H 8.0 in the alkaline range, of the hydrogen ion scale, if grown in partial oxygen tension. Full details of the methods employed are given by Swartz.

Antiseptic Action of Local Anesthetics.—The effects of a number of local anesthetics were studied by Macht and others on *Staphylococcus aureus* and *Bacterium coli* by three different methods. It was found that some of the drugs, notably cocain and novocain, possess no antiseptic powers whatever, while others, notably apothesin and benzyl alcohol, exhibit distinct antiseptic effects. These findings are deemed to be of interest not only in relation to healing of wounds, but also in respect to a direct effect on the flora of certain organs, notably the bladder and urethra.

Effect of Local Anesthetics on Gonococcus.—The germicidal value of certain concentrations of a number of local anesthetics against the gonococcus was determined by Macht and others. The solutions were of the same strength as those commonly used in clinical work. Solutions of beta eucain were found to have no antiseptic or germicidal action against the gonococcus. Alpha eucain solutions are antiseptic but not germicidal for the gonococcus. Holocain, alypin, apothesin and benzyl alcohol are both antiseptic and germicidal for the gonococcus.

Epididymectomy.—Eisendrath found that if one begins the isolation of the spermatic vessels at some point higher up where they are very accessible it is possible to perform the remainder of the operation (no matter how many adhesions to the scrotal tissue are present) with the blood supply of the body constantly in view, thus avoiding all danger of injury to the same. The operation of epididymectomy can be simplified and in addition it is possible to divide the vas deferens high up without opening the inguinal canal.

Bladder Mucosa Absorbs Dyes But Stops Bacteria.—The experiments made by Magoun showed that bacteria do not readily pass through the mucosa of the bladder; nevertheless this mucosa has the power of absorption of certain dyes such as phenolsulphonephthalein and indigo carmine. Absorption of bacteria through the normal bladder mucosa or the acute inflamed mucosa must be relatively slight, if it occurs at all. This selective absorption of the bladder mucosa is under further investigation.

Kentucky Medical Journal, Bowling Green

September, 1920, **18**, No. 9

Dividends of Decency. E. L. Gowdy, Campbellsville.—p. 331.
Syphilis Bones and Joints. W. P. Sights, Paducah.—p. 336.
Necessity of Education in Regard to Some New Health Laws. F. A. Stine, Newport.—p. 338.
Obstetrics from General Practitioner's Standpoint. G. G. Thornton, Lebanon.—p. 339.
How to Lower Cancer Rate. G. Aud, Louisville.—p. 343.

Medical Record, New York

Oct. 2, 1920, **98**, No. 14

Psychology of Ouija Board. J. A. Gilbert, Portland, Ore.—p. 547.
Pathogenesis of Dementia Praecox. B. Holmes, Chicago.—p. 550.
Epidemic of Kaffirpox in Jamaica. H. D. Chapin, New York.—p. 553.
Common Motor Disorders, Disuse Cripplings, Neuroses, Postinfective and Others. J. M. Taylor, Philadelphia.—p. 554.
Cash Premium on Health. F. Wehle, Buffalo, N. Y.—p. 557.
Venereal Disease Control. H. Goodman, New York.—p. 559.
Rabelais' Remarks on Throat. D. W. Montgomery, San Francisco.—p. 561.

Nebraska State Medical Journal, Norfolk

September, 1920, 5, No. 9

Acidosis in Infants and Children. H. M. McClanahan, Omaha.—p. 249.
Practical Infant Feeding Without Breast Milk. F. Clarke, Omaha.—p. 253.
Roentgen Ray Treatment of Goiter. A. P. Overgaard, Omaha.—p. 256.
Education of Deaf. F. W. Booth.—p. 261.
What the State is Doing for Its Tubercular. L. T. Sidwell, Kearney. —p. 265.

Pennsylvania Medical Journal, Harrisburg

September, 1920, **23**, No. 12

Diagnosis of Empyema in Children. A. Hand, Philadelphia.—p. 697.
Bacteriology of Empyema. E. Steinfield, Philadelphia.—p. 699.
Ultimate Results Following Operations for Empyema Complicating Epidemic Influenza. M. Behrend, Philadelphia.—p. 701.
Fundus Oculi in War. G. H. Cross, Chester.—p. 707.
Sloughing in Local Anesthesia — Its Causes and Prevention. J. A. Ruben, Pittsburgh.—p. 713.
Self Retaining Slide Bone Graft. H. C. Masland, Philadelphia.—p. 713.
Quinin as Prophylactic and Specific for Influenza. A. Sterling, Philadelphia.—p. 719.
Supernumerary Distal Phalanx of Right Thumb. R. S. Reeves, Philadelphia.—p. 720.
Six Months' Work in Postnatal Clinic. J. D. Donnelly, Philadelphia. —p. 721.
Etiologic Factors and Differential Diagnosis of Mental Diseases. H. V. Pike, Danville, Pa.—p. 723.

Southern Medical Journal, Birmingham, Ala.

October, 1920, **13**, No. 10

Responsibility of Physicians who Treat Malaria Cases. C. C. Bass, New Orleans.—p. 693.
Effect and Maintenance of Intra-Abdominal Pressure. J. B. Fitts, Atlanta, Ga.—p. 695.
*Occurrence of Gallstones in Young Individuals. J. Friedenwald and A. Ullman, Baltimore.—p. 700.
What Are We Doing for the Mentally Backward Child? C. E. Boynton, Atlanta, Ga.—p. 704.
Co-Operative County Health Work in North Carolina. B. E. Washburn, Raleigh, N. C.—p. 710.
State Law Regulating Construction and Maintenance of Privies. K. E. Miller, Raleigh, N. C.—p. 712.
Cranioplasty: Indications, Operation and Results. J. E. J. King and G. C. Anderson, New York.—p. 719.
Reminiscences in Bone Surgery with Special Reference to Pott's Disease. R. T. Taylor, Baltimore.—p. 733.
Nonhypertrophic Forms of Prostatic Obstructions. B. Lewis and N. S. Moore, St. Louis.—p. 740.
*Abdominal Pregnancy: Case Report. E. B. Wren, Talladega, Ala.—p. 746.
General vs. Local Faucial Tonsil Removal. F. D. Boyd, Fort Worth, Texas.—p. 748.
Simplified Technic for Local Anesthesia of Tonsils — Intranasal Surgery without Packing. W. T. Patton, New Orleans.—p. 750.
Medical Education from Viewpoint of Fifth-Year Graduate. G. A. Caldwell, Atlanta, Ga.—p. 759.
Medical Education by a Fourth Year Student. D. C. Elkin, Atlanta, Ga.—p. 766.

Cholelithiasis in the Young.—Gallstones, according to Friedenwald and Ullman, are rarely observed before the twentieth year, though youth affords no absolute immunity. In their five cases the ages varied between 15 and 18 years. As in older individuals, in the young the condition is found more commonly in females than males. The clinical picture in the young is quite similar to that observed in adults. Pain and tenderness under the right costal arch are constant symptoms and were present in all of our cases. Jaundice is common and was present in three of the authors' cases. In none of their cases was there evidence of any focal or general infection which could be considered as a causal factor.

Abdominal Pregnancy.—Wren cites the case of a colored woman, aged 21, who became pregnant in December. In April she had cramplike pains all over the abdomen. She would not try to move, as all efforts to do so caused great pain. The abdominal muscles were rigid. All change of position had to be done by the attendants. Late in July a fibroid (?) tumor was located in the pelvis, with a pregnant uterus high up in the abdomen. Thinking it doubtful that she could give birth to a child at term on account of the tumor, as well as on account of the bad condition she was in, it was decided to induce labor. Accordingly, the cervix was dilated and packed with gauze without any results whatever. A second attempt was made. There was considerable shock following this procedure, but still no evidence of labor. The patient's condition was so serious that an immediate operation was advised in an effort to save her life. A large cystlike tumor was found lying well up above the umbilicus and transversely under the diaphragm. This proved to be the membranes containing a living male child. The membrane was quickly opened and the child delivered. Before opening the sack there was no fluid in the abdominal cavity. The uterus was about the size of a large orange with a large opening in the fundus. The membranes were attached all around the opening at the top of the uterus and had the appearance of having been growing on this surface for months, as the membranes were continuous from the outer surface of the uterus. The placenta was attached all around the opening in the fundus. A supravaginal hysterectomy was done, removing one tube and ovary. The patient recovered and the child is alive.

Tennessee State Medical Ass'n Journal, Nashville

September, 1920, **13**, No. 5

Tincture of Digitalis. S. P. Bailey, Nashville.—p. 161.
Ectopic Pregnancy — Case Records. E. H. Baird, Dyersburg.—p. 167.
Disorders of Sexual Function in Male. P. G. Morrissey, Nashville.—p. 172.
Chronic Atonic Constipation; Treatment with Internal Massage of Rectum and Sigmoid. D. R. Pickens, Nashville.—p. 175.
Plea for Better Clinical Diagnosis. A. L. Rule, Knoxville.—p. 178.
Plea for More Modern Treatment of Acute Gonorrhea. G. M. Roberts, Chattanooga.—p. 184.
Cesarean Section. W. P. Watson, Dyersburg.—p. 188.
Case of Lethargic Encephalitis. C. C. Turner, Memphis.—p. 189.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Glasgow Medical Journal

September, 1920, **114**, No. 3

*Practical Points in Diagnosis of Pulmonary Tuberculosis. J. Crockett. —p. 129.
Medicine in Scotland in Early Part of Eighteenth Century. G. A. Allan.—p. 148.

Value of Inspection in Diagnosis of Tuberculosis.—The importance of inspection in the diagnosis of pulmonary tuberculosis is emphasized by Crockett inasmuch as the findings so obtained often will lead to a diagnosis. However, other aids should not be neglected. In tuberculosis, although the lesion may be localized, it manifests itself by secondary changes in every organ of the body; in fact, in every tissue, and these changes may be perceived by inspection. Take for example, the hands. Two types are found in tuberculosis, the one where the ends of the fingers are clubbed, the other where they are long and thin and tapering. The curvature of the nails is accentuated, not only laterally but longitudinally. The color of the nails is interesting and important. Attention should be directed to the arms, the axillae, the head and the neck; the hair, the facies, the ears, the eyes, the color of the cheeks, the chin and the jaw; the mouth, the tongue and the chest. Much information may be obtained in this way and serve as a basis for a diagnosis, when accessory aids to diagnosis have failed.

International Journal of Public Health, Geneva, Switzerland

September, 1920, **1**, No. 2

*Tuberculosis in Primitive Tribes and Its Bearing on Tuberculosis of Civilized Communities. S. L. Cummins.—p. 137.
Saprophytism of Venereal Organisms and Its Dangers. H. Gougerot. —p. 172.
Science and Practice in Fight Against Malaria. B. Gosio.—p. 178.
Anti-typhus Campaign in 1915 in Serbia Considered in Connection with Present Typhus Epidemic in Poland. R. P. Strong.—p. 188.

Tuberculosis in Primitive Tribes.—A study of the geographic distribution of tuberculosis, Cummins says, shows that there are still many large tracts of the earth's surface where this disease is rare or absent. Members of isolated communities, where tuberculous disease is rare or absent, show, in comparison with members of infected communities, a marked susceptibility to the disease. The relatively high resistance to tubercular infection manifested by the majority of individuals in infected communities is attributable to acquired immunity resulting from previous contact with the disease. The susceptibility of African and other primitive

races to tuberculosis is the susceptibility of "virgin soil." A theory of "infection and resistance in mutual interaction" is capable of explaining the statistical correlations that have been adduced to support the theory of "inherited disposition." All the phenomena of variation in clinical type, comparative mortality, distribution according to age, sex, locality and occupation noted as characteristic of tuberculosis in a highly organized community, Cummins says, are explicable in terms of infection and resistance. Recent statistical investigations support the assumption that mild infections with bovine bacilli may play an important part in raising the general resistance to the human type of tuberculous disease. One of the results of this increased resistance may be the production of greater chronicity of phthisis pulmonalis, a lengthening of the life of "bacillus carriers" and "excreters" in the parental period, and a consequent increase of danger to infants and children. These considerations indicate that exhaustive research is still necessary in order that efforts at the control of tuberculosis may be directed along effective lines.

Japan Medical World, Tokyo

Sept. 4, 1920, **10**, No. 36

Operative Treatment of Pulmonary Necrosis. S. Sato.
Treatment of Cholera Before Conveyance to Isolation Hospital. K. Ohno.

Journal of Laryngology, Rhinology, and Otology, London

September, 1920, **35**, No. 9

Total Laryngectomy: Indications for and Results of Operation. C. J. Symonds.—p. 257.
*Origin of Sporadic Congenital Deafness. J. K. Love.—p. 263.
*Can Acquired Deafness Lead to Congenital Deafness? M. Yearsley.—p. 270.
Aqueduct of Fallopius and Facial Paralysis. D. McKenzie.—p. 271.

Sporadic Congenital Deafness.—Love maintains that sporadic cases of deafness are not only clinically but genetically identical with the hereditary cases; that sporadic congenital deafness is hereditary and that such heredity is mendelian.

Hereditary Deafness.—Yearsley cites the history of a family with acquired deafness, i. e., deafness appearing after birth which produced offspring that were born deaf. It is important to note that the deafness was probably otosclerosis and, therefore, of hereditary character.

Lancet, London

Sept. 18, 1920, **2**, No. 5064

*Clinical Experiences of a Physician During the Campaign in France and Flanders, 1914-1919. J. R. Bradford.—p. 583.
*Diurnal Variations in Hemoglobin Content of Blood. G. Dreyer, H. C. Bazett and H. F. Pierce.—p. 588.
*Rupture of Cesarean Scar in Subsequent Pregnancy or Labor. E. Holland.—p. 591.
*Case of Traumatic Displacement of Lumbar Vertebra. C. Westman.—p. 598.
Case of Idiopathic Atony of Bladder. S. M. Vassalo.—p. 599.
Moth in Ear. A. Wood.—p. 600.

Acute Infectious Polyneuritis.—Jaundice, nephritis and acute infectious polyneuritis are discussed by Bradford. With regard to the latter, Bradford says the disease is a very definite clinical entity, although both on clinical grounds and from the results of the study of the morbid anatomy it is probable that it is not a neuritis but really a diffuse affection of the nervous system affecting both nerve cells and nerve fibers in the spinal cord, spinal ganglia, peripheral nerves, and to a slight degree the cerebral cortex. It probably has affinities both to poliomyelitis and to lethargic encephalitis, and possibly to other varieties of encephalitis.

Variations in Hemoglobin Content.—The observations recorded by Dreyer, Bazett and Pierce were carried out on goats and men. To exclude as far as possible the effects of feeding and rest, etc., on the curves, these conditions have been varied in different experiments, with the result that similar curves have been obtained under very diverse conditions. The diurnal variations in hemoglobin percentage met with are very considerable and may even reach as much as 30 per cent., while 10 per cent. changes are of more or less common occurrence. On the average, the excursions seem to be more marked in individuals or animals with a low hemoglobin content of the blood. The authors do not offer any rational explanation of these diurnal variations, though there is strong evidence that they are closely connected with variations in the pulse rate, blood pressure, rate and volume of respiration, and possibly with fluid absorption or kidney secretion.

Rupture of Cesarean Section Scar.—Five cases are put on record by Holland. The etiology and anatomy of ruptured scars is discussed and an analysis made of the literature. The results of a follow-up inquiry into the subsequent obstetric history of a large number of cesarean section patients operated on between 1912 and 1918 are also detailed. It appeared that the frequency of rupture of the cesarean section scar in subsequent pregnancy or labor (abortions excluded) is 4 per cent. The cause of ruptured scar is imperfect healing, leading to a thin scar in which muscular union has failed, and which consists of little more than peritoneum and decidua with a varying amount of intervening fibrous tissue. All thin scars stretch during pregnancy; rupture of a thin scar may be determined solely by the intrauterine tension of normal pregnancy or by the uterine contractions of normal labor; or it may be favored by various accidental factors, of which the chief is insertion of the placenta over the scar, with partial separation of the placenta and retroplacental hemorrhage. Other accidental factors are overdistension of the uterus, prolonged or obstructed labor, operative interference, such as internal version, the insertion of hydrostatic bags, and the administration of such drugs as pituitary extract. In the reported cases, rupture occurred almost as often during pregnancy as during labor (in the proportion of three to four); and many cases have been reported occurring as early as the seventh month of pregnancy. The chief cause of imperfect healing is infection of the uterine wound; other causes are imperfect methods of suture and the employment of unsuitable suture material. As regards the suture material, cutgut should not be used, for the liability to rupture after cutgut is two and a half times as great as when silk is used. For theoretical reasons, silkworm gut is the most suitable material. As regards the incision, the scar of the transverse fundal incision is especially liable to rupture. Only one case of rupture of the scar of the cervical incision has so far been reported.

Traumatic Displacement of Vertebra.—The case cited by Westman indicates the value of roentgen-ray examination in cases of obscure backaches before resort to manipulative treatment. Treatment can then be directed to the lesion at fault, and valuable time saved. A traumatic malposition of the third lumbar vertebra was corrected after twelve years by mobilizing movements and massage.

Sept. 25, 1920, **2**, No. 13

*Gall Stones. A. J. Hall.—p. 633.
*Clinical Experiences of a Physician During Campaign in France and Flanders, 1914-19. J. R. Bradford.—p. 636.
*End Results of Peripheral Nerve Injuries Treated by Operation. W. Thorburn.—p. 640.
*Prognosis in Certain Affections of Heart. W. T. Ritchie.—p. 643.
*Effects of Hot and Cold Applications on Superficial and Deep Temperatures. J. J. R. MacLeod, A. R. Self and N. B. Taylor.—p. 645.
*Complement Fixation Test in Pulmonary Tuberculosis: Its Use as a Means of Diagnosis. A. L. Punch.—p. 647.
Medical, Surgical, Obstetrical and Therapeutical. A Case of Defective Sleep-Shunt. E. W. Scripture.—p. 652.
Case of Eclampsia in Middle Pregnancy, Treated by Vaginal Hysterotomy; Recovery. A. W. Bourne.—p. 652.

Urges Operation for Cholelithiasis.—Hall maintains that it is the physician's duty to urge all those in whom the existence of gallstones is fairly certain to undergo operation, unless there is some strong contraindication. Although the pain may be tolerable, and perhaps only intermittent, yet it is impossible to judge how far dangerous inflammatory complications already exist, or how soon they may arise, while the possibility of malignant disease ending the scene is a very real one, although this may be delayed for many years.

Massive Collapse of Lung Following Gunshot Wounds.—Bradford's study of cases of massive collapse of the lung as the result of gunshot wounds suggests that collapse of the lung is a very common, perhaps the most common, result of a gunshot wound of the chest, although in a very large pro-

portion of cases its presence is masked by the development of a hemothorax. He is of opinion that this is the reason why the physical signs of a simple sterile hemothorax are so often different from those of a pleural effusion. In the latter the collapse of the lung is produced gradually in association with the pleural exudate; in the former massive collapse of greater or less extent is produced more or less suddenly, and the hemorrhagic effusion of the hemothorax is only in part responsible for the collapse of the lung present.

End-Results of Secondary Nerve Suture.—Thorburn states that if a surgeon obtains 50 per cent. of really good economic recoveries after secondary nerve suture he is doing well; if he obtains 75 per cent. of such recoveries, which will bear investigation, his work is both brilliant and fortunate.

Prognosis in Heart Disease.—Prognosis in heart disease is notoriously speculative and uncertain. Ritchie says prognosis is primarily always dependent on accuracy of diagnosis. The precise data furnished by radiograms, the sphygmomanometer, the polygraph, and the electrocardiograph have placed diagnosis on a firm basis, and the corelation of this knowledge with symptoms and physical signs has now become so well established that in practice we can usually dispense with the electrocardiograph and other elaborate instrumental methods.

Deep Effects of Hot and Cold Applications.—The results obtained by Macleod and others, in general, show that when heat which is about 15 C. above that of the body is applied over approximately one-fourth of the surface of the abdomen a change in temperature may occur which may penetrate the abdominal viscera for a distance of about 75 mm., although it can only spread laterally for somewhat less than 20 mm. the effects of cold are equally as definite as those for heat, temperature change being, of course, in the opposite direction.

Value of Complement Fixation Test in Diagnosis of Tuberculosis.—Punch is of the opinion that the complement fixation test is a specific means of diagnosis of the presence of an active or recently active tuberculous lesion. A negative reaction is as reliable an indication of the absence of such a lesion as a positive reaction is of its presence. A positive reaction in the highest dilution only of complement is just as reliable an indication of the presence of such a lesion as a positive reaction in all three dilutions.

Medical Journal of Australia, Sydney

Aug. 21, 1920, **2**, No. 8

Charles Hastings; Founder of the British Medical Association; His Life and Aims. H. Simpson Newland.—p. 165.
Use of Roentgen Rays in Diagnosis of Thoracic Acections. S. Argyle. —p. 169.

Medical Journal of Siamese Red Cross, Bangkok

April, 1920, **3**, No. 1

Clinical Diagnosis of Chancre. H. S. H. P. Thavara.

Tubercle, London

September, 1920, **1**, No. 12

*Basal Pneumonic Residues in Children. W. Overend.—p. 547.
Cooperative Tuberculosis Work in Italy. Wm. C. White.—p. 550.
Expectation of Life in Dispensary Tuberculous Patients. L. T. Burra. —p. 554.

Unresolved Pneumonia.—Overend pleads for the more frequent radiologic examination of the chest in children, and particularly in those who fail to recover completely after pneumococcal infections of the lung. Many cases of ill health after pneumonia and infectious disease among children are due to unresolved pneumonia produced by a chronic pneumococcal infection, and are not tuberculous. Bronchiectasis of the internal moiety of the lower lobe, or of the whole lobe, is more likely to follow attacks of chronic or indurative basal pneumonia; disseminated patches of bronchopneumonia are more liable to produce areas of diffuse bronchial dilatation. After removal of enlarged tonsils and adenoids, the expediency of surgical interference should again be discussed if the lower lobe alone is solid, honeycombed with bronchiectatic abscesses and dilated bronchi, and also accompanied by symptoms of septic absorption.

Annales de Médecine, Paris

1920, **7**, No. 6

*Reaction of the Optic Nerve in Meningitis. F. Terrien.—p. 393.
*Parathyroids in the Insane. Laignel-Lavastine and P. Duhem.—p. 409.
*Digestion of Fats. M. Labbé and H. Labbé.—p. 424.
*Typhus in Children. M. Ciuca and Lucie Bancheriu.—p. 436.
*Continuous Fever of Sympathetic Origin. A. Cawadias.—p. 450.

Reactions of Optic Nerve with Pathologic Conditions in the Meninges.—Terrien emphasizes that the optic nerve is actually an expansion of the brain, protected by the same coverings and laved by the same fluid, and what affects the meninges elsewhere generally affects simultaneously the meninges surrounding the optic nerve. Lumbar puncture relieving the meninges elsewhere relieves also the optic nerve, and antimeningococcus serum aids in combating the perineuritis. Epidemic meningitis does not seem to entail the grave ocular complications of former years since these measures have been made the routine practice. Syphilitic retrobulbar neuritis and perineuritis also yield to modern treatment. A single lumbar puncture in treatment of postmeningitic visual disturbance has improved vision from 1/6 to 2/3, and cured auditory postmeningitis lesions. Choked disk is an entirely different matter. This should be sought with special care in incipient tabes; he reiterates that *hyperhémie papillaire* is the warning signal.

The Parathyroids in the Insane.—The minute details of sixty-four cases are tabulated. Great variability was evident in number, shape and structure not only in different subjects but in the same subject. There was only one parathyroid in seventeen, and none in one case of myxedema.

Digestion of Fat.—Labbé and Labbé state that the estimation of fat digestion by the fat found in the blood is liable to be misleading, but the fat in the stools gives a reliable oversight of the functional capacity of the pancreas. A technic is described with which it is possible to determine the coefficient of absorption of the total fats and of the neutral fats, with the percentages of the different forms of fat excreted. A test diet has to be given for three days beforehand. Estimation of fat digestion may aid in differential diagnosis and locate the lesion.

Typhus in Children.—Thirty-seven cases were studied in detail out of 110 cases of typhus in children. The disease is mild in children and does not affect the nervous system; the incubation is not over twelve or fourteen days. There does not seem to be any natural immunity.

Continuous Fever of Sympathetic Origin.—Cawadias writes from Athens to explain slight prolonged fever as a phenomenon of overactivity of the sympathetic nervous system. The temperature always ran up higher in his cases of the kind after injection of epinephrin. The slight continuous fever is probably of endocrine origin, and the patient can be reassured that it will do no harm even though it may persist indefinitely. Repose for body and mind and a trip to the mountains may be advised. A typical case is described in detail. The temperature of the woman of 25 has ranged from 37.5 to 38 C. (99 to 100.4 F.) for ten years, with unstable pulse and vasomotor disturbances but no reaction to atropin. Nothing can be found to explain the fever otherwise, and its prolonged course excludes tuberculosis. The thyroid and blood pressure are apparently normal, and there is no oculocardiac reaction, but epinephrin elicits an intense reaction.

Archives des Maladies de l'Appareil Digestif, Paris

August, 1920, **10**, No. 9

*Septicemic Plastic Linitis. Le Noir, C. Richet, Jr. and Langle.—p. 513.
*Diverticulum of Appendix. E. Grynfeltt and E. Chauvin.—p. 520.
*Neuralgia from Intestinal Erethism. J. J. Matignon.—p. 543.

Fulminating Gastric Cancer of Plastic Linitis Type.—Le Noir and his co-workers report a case of plastic linitis, fatal in three and a half months, with involvement by way of both lymphatics and blood vessels of the liver, mesentery, spleen, suprarenals, kidneys, lungs and numerous ganglia. The patient was a man of 30. This is the second case of this septicemic form of plastic linitis that Le Noir has encountered. They form a fourth group of plastic linitis cases.

Inflammatory Diverticulum of the Appendix.—Grynfeltt and Chauvin devote twenty-two pages to description of a case of this kind. Four plates show the healing process in various stages.

Neuralgic Pains for which the Intestines are Responsible.—Matignon apologizes for calling attention to pain from flatus, but describes a number of cases in which the unusual localization of the pain at a distance led to erroneous treatment. The colon at the hepatic or splenic bend is abnormally sensitive as can be determined by palpation, and distention from flatus causes a train of distant painful sensations which by their location may simulate liver, pleural or other disease, sciatica in particular. The absence of fever may be the only clue to exclude actual disease of the liver when there is intense right subcostal and subscapular pain with stiffening of the right hypochondrium. Exaggeration of the erethism of the intestines during a course of mineral waters may bring on puzzling attacks, pains in the side sometimes suggesting incipient tuberculosis or pleurisy. In some persons pain and dyspnea with palpitation or arrhythmia develop on horseback or on reclining three or four hours after a meal. Some obtain relief by contortions of the trunk, forcing flatus along, but all are benefited by treatment to reduce the irritability of the intestines, especially at the bend of the colon.

Bulletin Médical, Paris

Aug. 21, 1920, **34**, No. 41

*Choked Disk. A. Cantonnet.—p. 747.
*Necessity for Public Cuspidors. E. Escomel (Peru).—p. 749.

Choked Disk.—Cantonnet expatiates on the diagnostic importance of edema in the optic disk, and the imperative necessity for reducing intracranial pressure when it is discovered. As there are no functional signs from it until in an advanced stage, it is apt to be neglected or overlooked, and the vitally important lumbar puncture omitted. Thanks to the transparency of the eye we are enabled to inspect the actual nerve centers here.

Public Cuspidors.—Escomel pleads for the installation in public places of cuspidors with running water like the cuspidors of the dentists, affirming that the defense of society against this most dangerous of all human excreta should not be postponed another day. The sputum is by far the most dangerous as it is capable of transmitting a number of fatal diseases, and the public should be trained to regard it as more of a disgrace to expectorate promiscuously than to void any other excreta in public.

Aug. 28, 1920, **34**, No. 42

*Physiopathology of Jaundice. M. Brulé.—p. 765.
Clinical Examination in Jaundice. M. Villaret and F. Saint Girons.—p. 769.
Laboratory Examination in Jaundice. P. Ameuille and R. Huguenin.—p. 773.
Spirochetal Jaundice. P. Pagniez.—p. 776.

Jaundice Number.—This is a republication of last year's special issue of the *Bulletin* devoted to jaundice. The authors have revised their articles to bring them down to date. The issue was reviewed in The Journal, Jan. 17, 1920, p. 209.

Journal de Médecine de Bordeaux

Aug. 10, 1920, **91**, No. 15

*Atypical Mikulicz' Disease. G. Portmann.—p. 403.
Jacksonian Epilepsy from War Skull Wound. Recovery after Removal of Cystic and Cicatricial Tissue. J. Brau-Tapie.—p. 406.

Sclerosis of the Glands of the Face.—Portmann reports two cases of this kind. The first patient was a young woman who from the age of 10 had had occasional attacks of fever and congestion in the parotid region. After the age of 14, the parotids were constantly enlarged while the submaxillary, sublingual and lacrimal glands were atrophied. There was not a trace of saliva or lacrimal secretion. The other patient was a woman of 58. The parotid and the nasal glands were enlarged, but the sublingual and submaxillary and also the nasal glands showed pronounced atrophy. The aspect in both was that of Mikulicz' disease, but the localization and nature of the process were different in part, and Portmann records the cases as the *syndrome de sclérose des glandes de la face.*

Lyon Médical

Aug. 10, 1920, **129**, No. 15

The Fundamental Indications for Digitalis. L. Gallavardin.—p. 649.

Paris Médical

July 24, 1920, **10**, No. 30

*Clinical Aspects of Epidemic Encephalitis. C. Achard.—p. 69.
*Exophthalmic Goiter Mistaken for Tuberculosis. E. Sergent.—p. 80.

Lethargic Encephalitis.—Achard comments on the multiple, shifting, acyclic symptomatology of this disease, its variability and lack of resemblance to other diseases and to other cases of the same disease. He insists that we cannot speak of a lethargic form, a neuralgic or myoclonic form, but can speak only of different types, and these types may develop in turn in the single case, the ophthalmoplegic type, the acute delirium type, the profound sleep type, the dazed or frozen type, the confusional, meningitic, myoclonic, choreic, athetosic and painful types, and the typhoidal type. Besides the acute, subacute, slow and protracted forms there may be abortive forms with complete recovery in three or five days. The shifting site of the lesions responsible for the disease can be traced by the symptoms at the moment.

Exophthalmic Goiter and Tuberculosis.—Sergent is inclined to accept a causal relation when symptoms of exophthalmic goiter develop in the course of tuberculosis but the great danger is that persons with merely exophthalmic goiter may be classed as tuberculous and sent to a sanatorium, where they acquire tuberculosis and the mistake is never discovered. He warns that many of the symptoms are common to both, the unstable temperature and pulse, variable blood pressure, menstrual irregularities, the bright eye, burning cheeks, sweats, emaciation, early fatigue, asthenia, diarrhea, and pain in the celiac plexus and in the intestines, but the most misleading symptoms here of hyperthyroidism are the small dry, spasmodic cough and the tendency to shortness of breath on exertion. The rhythm of breathing is staccato, spasmodic. Differentiation is possible only by recognizing the clinical picture of thyroid overactivity on the one hand and absolutely excluding active tuberculous lesions on the other hand. Especially at the two extremes of the genital life of women, at puberty and the menopause, we should be on the alert to detect hyperthyroidism. The instructive examples reported are all in women, but he knows of men whose overactive thyroid led to erroneous treatment for tuberculosis.

Presse Médicale, Paris

Aug. 28, 1920, **28**, No. 61

*Pneumococcus Infection in Infants. P. Nobécourt and Paraf.—p. 593.
General Laws for Intraspinal Anesthesia. P. Delmas.—p. 596.
*Phenylethylbarbituric Acid (Luminal) in Epilepsy. L. Cheinisse.—p. 598.

Pneumococcus Infection in Infants.—Nobécourt and Paraf found several healthy carriers among the infants from 4 to 10 months old at the Maternité where pneumococcus infection was common last winter. It induced rhinopharyngitis, tracheobronchitis, pneumonia or pleurisy as a rule, but only a few of the infants presented evidence of septicemia, purpura in two, with complicating meningitis in one of the two. None of the otitis cases progressed to mastoiditis. The local measures found effectual were instillation in each nostril three or four times a day of 8 or 10 drops of a 3 per cent. solution of sodium borate with 0.75 per cent. sodium chlorid, or a 1 per cent. oil solution of camphor. But the main reliance was on antipneumococcus serum; 5 or 10 c.c. of this antiserum was injected with a fine needle directly into the focus of hepatization in the lung or into the pleura. Aspiration through the needle yielded a drop of serous fluid abounding in pneumococci. A little coughing aids in spreading the antiserum through the focus, but the antiserum does not spread over an area broader than 10 or 12 cm. and hence the injection has to be repeated at another point if the focus is extensive. The twenty-one graver pneumonia cases were given this antiserum treatment, and 60 per cent. recovered, while four recovered of the six with purulent pleurisy, and complications elsewhere were responsible for the death of one of these two, the pleurisy having healed. The antiserum was well borne and encourages a trial of preventive vaccination when the

pneumococcus is prevailing. Type II was generally encountered in the cases here discussed.

Phenylethylbarbituric Acid in Epilepsy.—Cheinisse compares recent European publications on the use of luminal in epilepsy, from Pécheux' favorable experiences in ten cases in 1913 to Maillard's communication which was summarized in these columns Sept. 25, 1920, p. 902. He used a French preparation of the drug. Raffegau emphasizes that the drug merely suspends the epilepsy but does not seem to attack the cause. His dose is 5 or 10 cg., never over 20, and he never witnessed any untoward incident in his seventy cases thus treated over long periods except an urticaria-like eruption on the hands in one case. The drug has to be given in two doses. Stein has published recently a case of poisoning from a single dose of 30 cg. taken by a man of 48 with kidney stone. Several writers contend that this treatment should not be undertaken unless the patient can be under close medical supervision. The consensus of opinion seems to be that this drug deserves the leading place in the treatment of epilepsy.

Revue Médicale de la Suisse Romande, Geneva

August, 1920, **40**, No. 8

*Pathogenesis of Round Gastric Ulcer. M. Askanazy.—p. 477.
Injection of Petrolatum in Chancroids. J. Golay.—p. 485.
Disordered Heart Action in Soldiers. E. Thomas.—p. 493. Cont'n.
Rubeola Epidemic. T. Reh.—p. 506.
Sodium Nucleinate by the Vein in Influenza. G. Turrettini.—p. 510.

Gastric Ulcer.—Askanazy has found *Oïdium albicans* practically constantly in gastric ulcers in the stomach and duodenum, and has noted that this fungus thrives best in media containing hydrochloric acid. He presents further data to sustain his assumption of the inflammatory and infectious nature of these ulcers. In a recent series of twenty-eight resected gastric ulcers he found *Oïdium* in all but four, as also in a number of duodenal and esophageal ulcers. His practical conclusions are that hyperacidity should be combated and, perhaps, even normal acidity. It is possible that vaccine or serotherapy might prove effectual against the oïdium. He warns further that a "peptic" duodenal ulcer may be merely secondary to infection in the stomach, and that we must abandon the assumption that the gastric juice has a sterilizing action on an ulcer. His statements are the outcome of fifteen years of research.

Schweizerische medizinische Wochenschrift, Basel

Sept. 9, 1920, **50**, No. 37

*Roentgen-Ray Treatment of Genital Cancer in the Female. M. Steiger.—p. 809.
*Technic for Radium Treatment of Uterine Cancer. M. A. Bétrix.—p. 818.
Axial Torsion of Sarcomatous Uterus. F. Chatillon.—p. 823.
Long Blade of Rye Coughed Up by Boy of Nine. E. Opprecht.—p. 825.
*Hyperpyrexia. L. Gelpke.—p. 825.

Roentgen-Ray Treatment of Cancer of Female Genital Organs.—Steiger's address, prepared for the annual meeting of the Swiss Gynecologic Society, after analyzing the literature and his own experience in 115 cases, concludes with the remark that radiotherapy is undoubtedly destined to play a more and more important rôle in treatment of genital cancer. He adds that it should not be left in nonmedical hands as it requires the strictest estimation of indications, in the narrowest sense of the word, and strict supervision. The physician doing roentgen work must be not only a physicist and mechanic but a biologist as well. In his service at Bern the survivals after operative measures averaged sixteen months and after operation plus postoperative raying, thirty months. This survival of over two years in the rayed cases testifies in favor of postoperative exposures. He discusses the technic and outcome in detail, adding that in a certain number of cases he applied diathermy preliminary to the irradiation.

Technic for Radium Treatment of Uterine Cancer.—In concluding his description of the technic for crossfire curietherapy of uterine cancer, as applied in his service at Geneva, Bétrix remarks that the immediate results of radium treatment surpass all expectations. In many cases the clinical and even histologic cure are apparently complete; in others inoperable neoplasms are modified to allow radical excision after one or two sittings, that is, in from three to eleven weeks after the treatment is begun. The patients remain well after the radium treatment for from eighteen months to two years. They feel so completely cured that it is rare for one to return for supervision to allow resumption of treatment at the first sign of recurrence. But the remote results are less favorable. Several of his patients have returned years later with deep recurrence of the malignant disease, which had spread by the same mechanism as with postoperative recurrence. But, for inoperable cancers, the benefit from radium treatment is enormous, putting an end to the hemorrhages, the discharges and the pains. The treatment should be individualized for each case and modified in each case from exposure to exposure, to correspond to the indications.

Hyperpyrexia.—The temperature ran up to 44.2 C. (111.5 F.) in the man of 29 during epidemic encephalitis with recovery.

Pediatria, Naples

Aug. 15, 1920, **28**, No. 16

Variations in Opsonic Index During Vaccine Therapy of Tuberculosis. A. Corica.—p. 729.
Congenital Megacolon. A. Dalla Valle.—p. 740.
*Anatomy and Pathology of the Thymus in Young Children. A. F. Canelli.—p. 753.

The Thymus in Young Children.—Canelli found the thymus in two lobes in 78.25 per cent. of the 115 cadavers examined. In 74.77 per cent. the thymus was in the thorax, and he advises never to disturb the sternum until the location of the thymus has been ascertained. The water content seemed to be in inverse proportion to the age, while the weight after desiccation increased with the age.

Policlinico, Rome

August-September, 1920, **27**, Surgical Section No. 8-9

Treatment of Wounds of the Rectum. P. Bastianelli.—p. 241.
*Pyoculture and Seroculture. A. Cassuto.—p. 255. Begun in No. 6, p. 174.
*Outcome with Exophthalmic Goiter. B. Schiassi.—p. 285.

Pyoculture and Seroculture.—Cassuto devotes eleven pages to tabulation of the details of the course of twenty-seven cases of osteomyelitis, phlegmons, empyema, mastoiditis or other surgical condition as followed and controlled by repeated cultivation of the pus from the lesion and by seroculture, that is, repeated testing whether the bacteria in the patient's pus are modified by his serum. He compares the action of the patient's serum on the pus bacteria with that of normal serum on the same bacteria. With this seroculture he obtained 100 per cent. correct findings in the positive cases, but it proved misleading in 50 per cent. of the few negative findings. Pyoculture proved misleading under the same circumstances in 75 per cent. The response to intradermal injection of an autogenous vaccine might usefully supplement these biologic tests.

Exophthalmic Goiter.—Schiassi reviews the ultimate outcome in 3 cases treated by sympathectomy at the Bologna Policlinic, with recovery of only one; in 6 treated by ligation of the thyroid arteries with recovery of only 50 per cent. and of 28 treated by thyroidectomy with complete and permanent recovery in 100 per cent. He adds that from 35 to 40 per cent. have died of those treated by medical measures alone during the last fifteen years. In a few of these, roentgen-ray treatment was tried after failure of other nonoperative measures, but few showed any benefit and one patient complained of aggravation. Various forms of organotherapy proved disappointing also. He styles the exophthalmic goiter patient a *tetanico psichico-morale*, and insists on long preparation for thyroidectomy, keeping the patient isolated and in bed for eight or ten weeks at least. In several cases he has witnessed the tipping over of a chair or the breaking of a tumbler bring back the tachycardia. Just before the operation he has the patient drink freely or gives fluid by proctoclysis. General anesthesia is preferable; afterward, strict isolation is as imperative as before, and the family are warned that emotional stress must be warded off at all times. Repose of heart, body and mind is the main thing, and country life should be recommended.

Riforma Medica, Naples

July 31, 1920, **36**, No. 31

Comparison of Digitalis and Ouabain. H. Vaquez.—p. 685.
*Urine Reactions Under Arsphenamin. M. Trossarello.—p. 687.
*Serologic Research in Cancer Patients. E. Pesci.—p. 689.
Immunity to Influenza. D. Falcioni.—p. 692.
Sexual Impotence and Artificial Fecundation from Medicolegal Standpoint. M. Carrara.—p. 694.

Modification of Urine Reactions After Arsphenamin Treatment.—Trossarello found the Almen-Nylander test for glucose in the urine strongly positive in over fifty syphilitics tested during or after arsphenamin treatment. Neither before nor later was there any indication of glycosuria.

Serologic Research in Cancer.—Most of Pesci's research gave only negative results, but he noted that the Wassermann reaction veered to negative in patients with cancer taking radium-ray treatment, when it had been positive before.

Brazil-Medico, Rio de Janeiro

July 17, 1920, **34**, No. 29

The Ear and the Hearing. E. Moraes.—p. 457.
Cataphrenia and Dementia Praecox. Alvaro de Carvalho.—p. 460.
Spondylotherapy and Abrams' Percussion. O. Clark.—p. 461.
*To Distinguish Between Wounds Made Before and After Death. Flaminio Favero.—p. 462.

To Distinguish Between Wounds Made During Life and After Death.—The eight tests applied confirmed the correctness of Verderau's assertion in 1910 that when white corpuscles are found in abnormally large numbers in a wound, this is presumptive evidence that the wound must have been inflicted during life. With a wound inflicted after death, the local blood count here would be the same as at other points. The findings may be misleading, however, when the interval has been very long or putrefaction has materially modified conditions, or when the wound involves one of the larger vessels.

Crónica Médica, Lima

June, 1920, **37**, No. 684

*The Superficial Tension of Urine. M. A. Velásquez.—p. 193.
The Thyroid and Production of Antibodies. A. Garibaldi.—p. 200.
Bromids in Epilepsy. C. A. Bambarén.—p. 202.
*Dysenteric Abscess in Infant. C. J. Carvallo.—p. 208.
Hydatid Cyst in Orbit. C. Villarán.—p. 210.
The Endocrine Glands in Relation to Epilepsy. A. Guardia Abadal.—p. 213.
Morales Macedo's Finger Hammer-Stroke Percussion of the Kidneys. I. Castellanos.—p. 218.

The Superficial Tension of the Urine.—Velásquez' experience has confirmed that the superficial tension of the urine is an index of the presence and the proportions of certain substances in the urine which frequently escape chemical analysis. They can be demonstrated by the reduction in the superficial tension; for example, the tension is reduced when the urine contains bile salts. The superficial tension of the urine, he continues, is inversely proportional to the toxicity of the urine. In typhoid, etc., a reduction in the superficial tension is a sign that toxins are being thrown off through the kidneys.

Liver Abscess in an Infant.—The infant a year and a half old had symptoms which suggested chronic dysentery, and also a large shirt-stud abscess in the liver and right lower lobe. The abscess was evacuated after resection of two costal cartilages, and under emetin recovery ensued in forty days. Carvallo cites the other cases in infants on record, but he could find no previous instance in an infant in Peru although amebic and protozoan colitis is common there.

Semana Médica, Buenos Aires

April 8, 1920, **27**, No. 15

*Correction of Deformity Left by Epidemic Poliomyelitis. M. Herrera Vegas and J. M. Jorge.—p. 481.
*Surgical Knots. O. Ivanissevich and I. Prini.—p. 493.
*Serologic Reactions in Different Diseases. A. Ariazzi and C. E. Pico.—p. 500.
Modern Treatments of Tuberculosis. Tiburcio Padilla.—p. 503.
High Frequency Currents in Treatment of Syphilis, M. Fernández-Corredor y Chicote.—p. 504.
Exophthalmic Goiter in the Tuberculous. J. F. Mieres.—p. 507.

Treatment of Crippling from Poliomyelitis.—Herrera Vegas and Jorge have operated on the arm in thirteen cases of deformity consecutive to epidemic poliomyelitis and on the leg in 137 cases, and they describe the details of this extensive experience. They state that they were the "first in America" to apply tendon grafts and transplantation for this purpose, and their success from the first has made them enthusiastically commend these operations. They insist on the necessity for careful individualization as the outcome depends on what the individual muscles are still capable of. If many of the muscles are paralyzed it is useless to attempt to restore function, and arthrodesis should be preferred. The postoperative treatment has to be long and carefully directed, and the limb must be always in hypercorrection in the cast. Months of training are necessary after its removal.

Surgical Knots.—Ivanissevich and Prini give twenty-six illustrations of surgical knots, and advocate in particular the "Prini knot." With this the short end is knotted twice on the long end, thus forming a stout slip-noose. By pulling on the long end, the knot is drawn extremely tight even in the depths. The long end is then knotted over the short end, which fastens the whole securely.

Serologic Tests in Various Diseases.—Ariazzi and Pico found the Sachs-Georgi test harmonize with the Wassermann in nearly 97 per cent. of the cases tested. In the few conflicting findings, the Sachs-Georgi proved correctly positive when the Wassermann was negative. In sixty-three cases of leprosy the two tests harmonized in all but two cases, a positive reaction being obtained with both in nineteen. Their conclusions are thus highly favorable as to the reliability of the Sachs-Georgi test.

Archiv für klinische Chirurgie, Berlin

Jan. 28, 1920, **113**, No. 2

Antiseptic Treatment of Wounds. G. Schöne.—p. 249. Conc'n.
*Arthrodesis of All Joints in Foot. W. Block.—p. 329.
Epidermoid Cyst on Penis. E. König.—p. 341.
Experiences with Infected War Wounds of Knee. D. Eberle.—p. 353.
*Malformations of Face. H. Zacherl.—p. 374.
Coincidence of Gallstones and Kidney Stones. Lukas.—p. 386.
Partial Antigen Treatment of Surgical Tuberculosis. H. Landau.—p. 397.
*Inguinal Hernia in Children. H. Wendriner.—p. 419.
*Instrumental Arrest of Circulation. E. Sehrt.—p. 428.
Three Unusual Tumors and Genesis of Tumors. P. Klemm.—p. 447.
*Tendovaginitis with Stenosis. K. Reschke.—p. 464.
*Cerebral Bladder Disturbances. F. Brüning.—p. 470.
Roentgen Ray Pictures of Lung. C. H. Grüder.—p. 493.

Arthrodesis of All Joints of the Foot with a Single Intervention.—Block slit the foot horizontally lengthwise and brought up the foot from the equinus deformity to a right angle. The upper and lower halves then fitted each other without coaptation of bones and joints, raw bone surfaces fitting over joints, etc., and they grew firmly together.

Malformations of the Face.—In connection with a snout, 2.5 cm. long, growing from the nose of a girl of 10, Zacherl discusses the literature on such congenital malformations.

Inguinal Hernia in Children.—Wendriner has been reexamining lately 43 adults treated for inguinal hernia in childhood. Of the 12 treated with truss alone, none are entirely free from their hernia and 2 are still wearing a truss. There has been no recurrence among the 31 herniotomy cases. In Körte's service herniotomy has been done on 54 infants, and there has been no recurrence. The earlier the herniotomy is done the better, Wendriner says. Children compelled to wear a truss do not develop normally in body or spirits.

Instrumental Arrest of Circulation.—Sehrt gives the history of efforts to control the flow of blood by compression, and illustrates the two instruments he has devised for limbs and to arrest obstetric hemorrhage. His instrument for the latter purpose was illustrated in The Journal, Feb. 28, 1920, p. 640.

Tendovaginitis with Stenosis.—Reschke has encountered twenty cases of de Quervain's stenosing tendovaginitis of the thumb tendons, and describes ten of them; the patients were all women with one exception. Many had long been treated conservatively without benefit, but slitting the tendon sheath cured at once the annoying and painful condition.

Cerebral Bladder Disturbances.—Brüning's two cases confirm the assumption of a cortical bladder center, injury of which entails retention of urine, and also of a center in the thalamus, injury of which entails incontinence. The cortical disturbances are transient. He adds that no instance is known of cerebral disturbance in anus functioning.

Deutsche medizinische Wochenschrift, Berlin

July 29, 1920, **46**, No. 31

The Solution of the Tuberculin Mystery. H. Much.—p. 845.
Treatment of Surgical Tuberculosis with Partial Antigens. J. E. Schmidt.—p. 846.
Criticism of Prophylactic Measures Against Syphilis. Papamarku.—p. 847.
Indications for Evacuation in Pleuritic Exudates and in Empyemas. A. Bacmeister.—p. 849.
Atypical Conditions in Infectious Diseases. II. H. Oeller.—p. 850.
Relation of Esophylaxia to Physiotherapy. W. Krebs.—p. 852.
Investigations with the Meinicke Syphilis Tests. Blasius.—p. 854.
Extensive Injuries to the Diaphragm. Unger and Weski.—p. 856.
Covering of Poor Amputation Stumps with Skin and the Technic of the Immunization of the Skin. M. Katzenstein.—p. 858.
*Roentgenoscopy of the Digestive Tract. O. Strauss.—p. 859.
Otologic Hints for the General Practitioner. G. Brühl.—p. 861.
The Reform Movement in Medical Education. J. Schwalbe.—p. 863. Cont'd.

Present-Day Roentgen Diagnosis in Diseases of the Digestive Tract.—Strauss discusses what roentgenoscopy has accomplished to date in the diagnosis of various diseases. Among the diseases of the digestive tract, it is in duodenal ulcer that roentgenoscopy accomplishes the most. To be sure, even here it is seldom possible to secure direct signs for the presence of an ulcer, but the indirect symptoms are very numerous, among which he mentions more particularly seven: ptosis, markedly exaggerated peristalsis, open pylorus, unduly rapid passage of the stomach contents into the duodenum and jejunum, presence of a permanent gray duodenal shadow next to the deep black stomach shadow, palpation with the aid of roentgenoscopy of a painful spot in the duodenum, and small residues in the stomach six hours after the ingestion of food. The ordinary duodenal ulcer attacks mostly the proximal portion of the duodenum, while stenosing ulcers appear more frequently in the distal portion. In stenosis the duodenum presents dentate filling defects, which is a sign of great diagnostic value.

Jahrbuch für Kinderheilkunde, Berlin

1920, **93**, No. 1

*Lymphatism as a Morbid Entity. K. Löwenthal.—p. 1.
Flour-Butter Mixture in Infant Feeding. E. Friedberg.—p. 16.
*Serotherapy of Alimentary Intoxication in Infants. R. Hamburger.—p. 25.
*Neurogenous Dermatoses in Children. B. Epstein and W. Neuland.—p. 33.
Scarlet Fever and Mixed Infection. A. Balint.—p. 44.
Grave Diphtheria in Children. A. Lohrig.—p. 49.

Lymphatism as a Morbid Entity.—Löwenthal argues that the overproduction of lymphoid tissue in the status thymicolymphaticus is merely a somewhat exaggerated reaction to the ordinary physiologic stimuli. It is nothing more than a morphologic deviation from the strictly normal and is not a constitutional anomaly. But if the overproduction happens to occur in a vital region, the mechanical disturbance may confer the status of morbid entity on the condition. In a case described in an infant of 16 months, the overproduction had occurred in the central nervous system. The purely local hyperplasia found in the corpus striatum was probably responsible for the febrile temperature by irritation of the heat center, just as any mechanical, electric, thermic or toxic influence is liable to affect adjacent ganglion cells.

Colon Bacillus Antiserum for Infants.—Hamburger used a commercial polyvalent colon bacillus antiserum prepared for cattle, and reports that he gave this treatment to thirty-one infants with alimentary intoxication. Over 31 per cent. of the children recovered, while only 4.8 per cent. recovered in a corresponding group of twenty-one treated by the ordinary measures without the antiserum. Plantenga used an autogenous antiserum, and has reported good results from this while no benefit was apparent from normal horse serum.

Neurogenous Dermatoses in Young Children.—Epstein and Neuland comment on the vital importance of distinguishing between the neurogenous dermatoses and those for which the exudative diathesis is responsible, as the treatment required is diametrically opposite. The neurogenous are distinguished by their localization especially at the bend of elbow or knee, their symmetry, dryness, lack of discharge, extremely chronic course, and itching. These features call for tests for overexcitability of the nervous system. We must not assume an ordinary dermatosis that happens to affect a neuropathic child, but proceed to link the dermatosis to the neuropathy. A few typical cases are described, among them that of a boy of 11 who since infancy has had a recurring skin affection on the cheeks, back of the neck or bend of the knees or elbows but never any manifestations indicating the exudative diathesis. He occasionally has headaches, diarrhea and umbilical colic, and at the age of 7 suddenly lost for three weeks the ability to speak. The dermatosis flared up anew after a hard examination in arithmetic. In some cases a change of scene cured the dermatosis which had resisted specialist dermatologic treatment for years; in one case merely the change of governess. One child lived alternately with its parents, who were separated, and its dermatosis recurred regularly when it was with the mother and subsided when with the father who let him play with other children. Scabies and pediculosis may be complicated with a neurogenous "eczema" in regions beyond. Cerebral reflexes from emotional stress are common; cases of herpes zoster, urticaria and Quincke's edema developing after a fright or excitement have been frequently published. They report some further cases where herpes of the lip or cheeks developed suddenly a few hours after a fright or sensation of disgust. Differentiation is most difficult in infants, and grows easier with the age, as the skin manifestations of the exudative diathesis improve under proper dieting, and decline as a rule with the first year. Changing the mode of life is the most effectual way—even in infants—to combat the neurogenous dermatoses, guarding against causal factors such as vermin, woolen underclothing, too heavy bed clothing and too warm sleeping room. The child should be kept out of doors as much as possible, in cool, shady places, with psychotherapy and local applications to relieve the inching. Even after the neurogenous dermatosis has been cured, it is liable to return at any time as the tendency may persist.

Monatsschrift für Geb. und Gynäkologie, Berlin

July 5, 1920, **53**. Döderlein Festschrift. Second Half

*Duplex Uterus with Atresia of One Side. F. Binz.—p. 176.
*Embolism After Gynecologic Operations. O. Eisenreich.—p. 190.
*Acute Gonorrhea in the Female. H. Saenger.—p. 197.
*Anomalies in Menstruation. R. Schröder.—p. 207.
Mechanism of Twisting of Child During Birth. A. v. Fekete.—p. 252.
The Food and Lactation. D. Grumme.—p. 271.
*Radiotherapy of Uterine Hemorrhage and Myoma. W. Kolde.—p. 283.
Statistics of Abortion. H. Lorenzen.—p. 291.
Treatment of Sterility by Slitting the Cervix. W. Nagel.—p. 305.
Influenza from Obstetric and Gynecologic Standpoints. F. Flury.—p. 314.
Antipyrin in Treatment of Puerperal Sepsis. T. Gottron-Killian.—p. 330.
*Septic Pleuropneumonia in the Newly Born. H. Rummel.—p. 336.
*Paravertebral and Parasacral Anesthesia. F. Rick.—p. 357.

Duplex Uterus with Atresia of One Side.—The girl of 19 in the case reported by Binz had been subject to dysmenorrhea with pain which had become continuous in the right side. Appendicectomy brought no relief. A supposed ovarian tumor had been noted at the operation, and this proved to be the blood-filled right half of the duplex uterus and right tube. Comparison of this case with others on record teaches the importance of a prompt abdominal operation with atresia of half of a uterus bicornis. The hematosalpinx should be removed and the two cornua joined into one cavity. One case has been reported by Küstner in which two years after hemihysterectomy a pregnancy was carried to term.

Embolism After Gynecologic Operations. — Eisenreich relates that at the gynecologic clinic at Munich there have been 12 cases of postoperative pulmonary embolism since 1907 in a total of 3,981 operations, including 2,500 laparotomies. Embolism was never observed after operations on the adnexa or for cancer, and there was nothing to suggest infection in 11 of the total 12 cases so that mechanical factors

must be incriminated: slowing of the blood stream or changes in the blood or in the vessel walls from compression. In 5 of the cases a large ovarian cyst had been removed. Getting the patient up early after the operation does not guarantee against embolism from mechanical causes. In one of the embolism cases the woman had been sitting up from the second day and had begun to try to walk.

Acute Gonorrhea in the Female.—Saenger stresses the importance of warding off infection of the cervix, stating that the gonococci are usually limited to the urethra at first. In ninety-six of ninety-eight cases he found gonococci in the urethra, but in the cervix only in seventy-eight. His description of two cases shows that it is possible to abort gonorrhea by active means to save the cervix from infection. In one of these cases the infection had been acquired in both mouth and urethra. The pelvis is kept quiet; no vaginal douches are allowed; the external genitals are washed with an antiseptic, and the urethra and para-urethral passages are treated vigorously by the physician himself at least once a day, and the woman has to stay in bed during menstruation. When a married man presents acute gonorrhea, Saenger insists on the wife's coming for examination and treatment, and by this means has often succeeded in aborting the infection.

Anomalies in Menstruation.—This forty-six page article is a critical review of the literature on this subject in the years 1915 to 1918. Schröder discriminates carefully between menorrhagia and metrorrhagia and says that radiotherapy is the sovereign remedy for menorrhagia but only as the last resort unless the menopause is close at hand. Even then it should be preceded by curetting, and this alone will cure in about 50 per cent. of the cases. The effect of the curetting should be awaited before proceeding further.

Roentgen-Ray Treatment of Uterine Hemorrhages and Myomas.—Kolde relates that he has had no mishaps and no injury of the skin in nearly seven years of radiotherapy in a total of 275 cases of hemorrhagic uterine disturbance and 220 of cancer. On suspicion of cancer, the sarcoma dose instead of the castration dose should be given. With the progress in technic that has been realized, he says that operative measures need no longer be given the preference in this group.

Septic Pleuropneumonia in the Newly Born.—Rummel analyzes the publications on this subject, and compares them with a personal case. The vigorous child of a healthy woman developed cyanosis and dyspnea four days after birth, and puncture three days later showed a left streptococcus pleural empyema. The child died two days later. Only three cases are on record showing similar pathologic findings. The woman had been healthy throughout the pregnancy, and the presumption is in favor of inhalation or aspiration of streptococci during the first days after birth.

Combined Nerve-Blocking Anesthesia.—Rick advocates a combination of paravertebral or parasacral anesthesia with the "twilight sleep" technic. He says that in 83 per cent. of his 100 cases the results were perfect. The method failed totally in five cases.

Münchener medizinische Wochenschrift, Munich

Feb. 27, 1920, **67**, No. 9

Use of Physiologic Sodium Chlorid Solution. Straub.—p. 249.
Recent Flocculation Tests for Syphilis. Huebschmann.—p. 251.
Treatment of Pulmonary Tuberculosis with Silicic Acid. Kühn.—p. 253.
Deep Thermometry. III. B. Zondek.—p. 255.
Vital Statistics of Nuremberg During the War. Von Ebner.—p. 257.
*Case of Syphilitic Periaortitis. G. Hubert.—p. 261.
Surgical Diphtheria and Hospital Gangrene. Wieting.—p. 262.
Prophylaxis of Syphilitic Infection in Midwives and Parturients. L. Hauck.—p. 262.
*The Abuse of Phenolphthalein. P. Rosenstein.—p. 263.
William Osler; a Character Sketch. F. Müller.—p. 263.

Sign of Syphilitic Periaortitis.—Hubert reports a case of syphilitic aortitis with aortic insufficiency in which a systolic and diastolic friction sound in the area of the aorta was noted. The intensity of the sound was dependent on respiration. It could be distinctly heard synchronously with the heart's action when the patient held his breath. Hubert regards this friction sound as a sign of syphilitic periaortitis, for which no absolutely conclusive symptom has heretofore been known. While the symptom is doubtless very rare, it may have great practical value, for in arteriosclerosis an extensive involvement of the adventitia is virtually unknown, so that the demonstration of the above described symptom may possibly furnish us with a practical means of differentiating arteriosclerosis of the aorta from syphilitic aortitis, which is otherwise exceedingly difficult.

The Abuse of Phenolphthalein.—Rosenstein states that a few months previously, during his office hour, a lady called on him who had been taking Boxberger's Kissingen Pills for the past several weeks as an antifat preparation. She had lost weight, she said, but it was at the expense of her general health. She could not get rid of her diarrhea, and on examination it became evident that she was suffering from severe hemorrhagic nephritis. Urinanalysis revealed 0.1 per cent. albumin in the urine, and in the sediment there were many granular and waxy casts. After a week's illness the patient recovered completely. The pills in question were found to contain phenolphthalein, although on the label only rhubarb and extract of cascara sagrada were mentioned as ingredients. Rosenstein expresses the wish that the authorities might take such action as would prevent the indiscriminate sale of such remedies.

Therapeutische Halbmonatshefte, Berlin

June 15, 1920, **34**, No. 12

Vitamins. G. Gaertner.—p. 321.
Operations for Pelvic Inflammations of Women. Meyer.—p. 329.
Treatment of Lupus by a Modification of the Landerer Tuberculosis Cinnamic Acid Method. A. Philippson.—p. 331.
*Argyria Following Injections of Silver Arsphenamin. Lochte—p. 334.

Argyria Following Injections of Silver Arsphenamin.—Lochte reports a case in which a young woman of 21, who had contracted syphilis for the first time, received seven injections of neo-arsphenamin, whereupon all manifestations disappeared within eight weeks. A relapse occurred ten months later, at which time the diagnosis was: syphilis nodosa of the scalp; gummatous periostitis of the tibia; syphilitic ulcer on the right arm. Some of the ulcers were fresh, some were scarred over, with distinct marginal infiltration. She was referred to a specialist. A month later she reappeared and stated that she had consulted a specialist, who gave her twelve injections of silver arsphenamin. The first injection was given intramuscularly, simultaneously into the right and left buttocks (0.2 gm.). There was no special pain. Five days later icterus appeared, which lasted fourteen days. Treatment was, however, not discontinued, as the patient felt well. A few days later, the patient noticed for the first time an ashen gray discoloration of the skin, which rapidly became more marked. When last seen the skin of the face and body presented a steel-gray color, which gave a peculiar impression. Even the eyes showed the same color. There were no outward manifestations of syphilis. Lochte did not see the case himself. Sweating treatment and homeopathic remedies, self-prescribed, were of no avail.

Wiener klinische Wochenschrift, Vienna

July 15, 1920, **33**, No. 29

Local Anesthesia and General Narcosis. H. Finsterer.—p. 623.
*Dangers of Local and Conduction Anesthesia. W. Denk.—p. 630.
The Combined Method of Anesthesia. A. Fraenkel.—p. 636.

July 22, 1920, **33**, No. 30

Action of Decomposition Products of Tissues and Bacteria Obtained by a Process of Fermentation. G. Joannovics.—p. 649.
Therapeutic Action of a Preparation Obtained by Digestion of Trichophyton Cultures. H. Fuhs.—p. 653.
Effect on Carcinomas of Decomposition Products Obtained by Fermentation Process. G. Scherber.—p. 654.
Conditions for Agglutination in Typhus. Weil and Felix.—p. 655.
Modification of the Schloffer Operative Method in a Frequent Form of Phimosis. F. Kazda.—p. 657.

The Dangers and By-Effects of Local and Conduction Anesthesia.—Through the columns of medical journals, Denk requested all colleagues to send him reports of their experiences in this field, with which request many complied. He emphasizes that he should not be regarded as an opponent of these methods, since he fully recognizes their advantages; only he wishes to point out the dangers resulting from too

exclusive use of local and regional methods without considering the constitutional peculiarities and the individual needs of the patient. He has sifted the material thus secured and collated the general experience of his correspondents, reviewing the toxic effects, fatal and otherwise, the tissue injuries, the after-pains, and some of the advantages and disadvantages of lumbar, sacral, paravertebral and splanchnic anesthesia and plexus anesthesia. On the whole, he regards the number of accidents as infinitely small compared with the total number of cases, but nevertheless they tower as warnings and prevent us from coming to regard local anesthesia as absolutely free from danger.

Zeitschrift für klinische Medizin, Berlin

1920, **89**, No. 3-4

*War Nephritis. S. J. Thannhauser.—p. 181.
Physical Factors Influencing Tests for Viscosity of Blood. E. Rothlin.—p. 233.
*The Children of Syphilitics. Marie Kaufmann-Wolf and Emmy Abrahamson.—p. 274.
Functional Capacity of Liver in Malaria. A. Mayer.—p. 282.
Behavior of Lymphocytes in Blood with Cancer. C. Moewes.—p. 298.
*Nucleus Relics in Erythrocytes. M. Bockhorn.—p. 304.
By-Effects of Subcutaneous Injections of Quinin in Pneumonia. A. Neumann.—p. 312.

War Nephritis.—Thannhauser arranged the war nephritis hospital in his charge so that the 800 patients passed in turn through the six wards, those in the first ward being fed only with 200 c.c. fluid (milk) and three rolls; in the third ward gruels were allowed, with 500 c.c. of fluid, and in the sixth ward the full diet but never over 1,500 c.c. of fluid. The patient was kept in the first two, "starvation and thirst" wards until diuresis set in; in the third ward until the edema had subsided. The fact that all in the ward were getting the same diet made it easier for the men to stand the restrictions. After the salt balance had been ascertained, a test addition of 10 gm. of salt to the diet was made. From 70 to 100 per cent. are excreted by the healthy. He gives the findings after this salt test in the various groups of patients, and emphasizes that they demonstrate that the organ which regulates the interchange of salt and water between the blood and the tissues is suffering from the action of the same noxious influence that is injuring the kidneys. By the summation of this injury, both water and salt are retained in the intercellular spaces. The salt test and the water test are a guide for the rational regulation of the intake of salt and of fluids in any kidney disease with a tendency to dropsy. The response shows how much fluid to allow to keep down the edema.

Fate of Children of Syphilitics.—This article reports the fifth series of the kind, including 213 living children of syphilitic parents. The total mortality for the entire five series was at least 70 per cent. when the mother was infected, and under all conditions it was about 50 per cent. The morbidity of the living averaged 50 per cent., so that only 25 per cent. of the children in the 134 families grew up healthy.

Nucleus Relics in Erythrocytes.—The man of 48 had presented constantly basophil inclusions in the erythrocytes which Bockhorn thinks must be nucleus relics, and must be regarded as a sign of grave import. He compares with it the few similar cases on record, and discusses whether the spleen or bone marrow is responsible.

Zentralblatt für Chirurgie, Leipzig

July 24, 1920, **47**, No. 30

Etiology of Dupuytren's Contracture. A. Krogius.—p. 914.
Plastic Nerve Sheaths. W. Goldschmidt.—p. 918.
Treatment of Cicatricial Contractures. A. Horwitz.—p. 920.

Zentralblatt für Gewerbehygiene, etc., Berlin

August, 1920, **8**, No. 8. Only medical articles listed

*Toxicity of Anilin Dyes. Bachfield.—p. 149. Begun in No. 7, p. 113.
*Artificial Respiration with and Without Supply of Oxygen Under Pressure. Wauer.—p. 159.

Toxicity of the Anilin Dyes.—Already reviewed, Aug. 31, 1920, p. 576.

Artificial Respiration Plus Oxygen.—Wauer has been experimenting with different methods for artificial respiration and different technic for administering oxygen in connection therewith. His conclusions are that it is just as practicable to give the oxygen straight from the tank, without the mediation of any pulmotor or apparatus. The Silvester method of artificial respiration can be rendered much more effectual by drawing the arms back past the head till they lie along the floor to the elbow. Roentgenoscopy of living subjects and cadavers has shown that turning the head sharply to the side generally opens the space between the base of the tongue and the spine, thus spreading the opening to the air passages. Giving oxygen materially promotes resuscitation.

Zentralblatt für Gynäkologie, Leipzig

Sept. 4, 1920, **44**, No. 36

*Eclampsia: A Symposium.—p. 986.
*Radiotherapy in Adnexitis. T. H. Van de Velde.—p. 994.
*Sutureless Method of Wound Closure. G. Schubert.—p. 998.

Eclampsia.—Stursberg recalls the assumption that eclampsia is connected with an increase of blood pressure, and reports findings which he thinks justify further investigation of the relation of the blood circulation to eclampsia. In two cases in which convulsions were no longer occurring but in which there was still stupor, he noted as marked an accentuation of the second pulmonary sound, as with severe mitral stenosis, but there was no valvular disease. The snapping character of the sound was very pronounced. There were no signs of marked disturbance of circulation, though one patient had slight cyanosis. The heart sounds gradually returned to normal in five days.

Hinselman followed Weiss' method in observations on the capillaries in four eclamptics, and found that the circulation in the capillaries of the leg showed marked variations in velocity within very short intervals. Sometimes the circulation was very rapid, sometimes jerky, and often stasis for from fifteen seconds to two minutes would occur. This behavior of the circulation in the capillaries is not confined to eclamptics. It occurs also in the healthy pregnant.

Denecke found in five cases of eclampsia a marked paucity of blood platelets, whereas in the healthy pregnant the thrombocytes are normal or moderately increased. In view of the recent opinions advanced that even uninjured vessels become permeable if the number of blood platelets falls below a certain limit (30,000 Frank), Denecke thinks that this finding has a certain importance.

Fahr describes the changes in the kidneys of twenty-eight eclamptic patients. The most important and the most common pathologic change affected the walls of the capillaries of the glomeruli, and was characterized by a spreading and thickening of the capillary wall, of varying intensity. Another rather frequent finding in the kidney was the presence of hemoglobin casts. The eclampsia toxin acts on the blood and the blood vessels; in the kidney this action is most noticeable in the glomeruli.

Sioli examined the brains of four eclampsia patients. The changes were in all four cases quite similar. Besides the well known manifestations of thrombosis and hemorrhage, lipoid droplets were found in the vessel contents and considerable accumulations of lipoids in the vessel walls. The changes in the vessels were not uniformly distributed but were localized in many small spots. In all cases the most noticeable change was the rather uniform occurrence of very numerous "ameboid" glia-cells and decomposition products in ganglion cells and in glia-cells.

Radiotherapy in Oophoritis.—Van de Velde contends that in every case of oophoritis, as soon as it appears that it will not run a light course, temporary sterilization of the ovaries by graduated irradiation is indicated. Roentgen rays and radium influence menstruation in much the same manner; radium, however, does not cause hemorrhages through irritation, and it seems to stay hemorrhage more quickly than the roentgen rays. Experience shows that irradiation does not exert a harmful effect on *later* conceptions. Injury to the surrounding organs and tissues occurs only through overdosage. For combating hemorrhage in cases of oophoritis with menorrhagia or metrorrhagia that do not yield to medical treatment Van de Velde applies 50 mg. of radium in an oblong tube; filter 1 mm. of silver, 1.5 mm. of nickeled brass, 1 cm. of

cotton, and a thin rubber covering. The tube is inserted with great care across the posterior fornix or is placed against the os, packed around with tampons. No inflamed and sensitive spot should be irritated, and the radium should be kept as far away from the rectum as possible. The patient must lie as quiet as possible during the treatment. The radium remains in place for twelve hours. Three or four applications are given, always followed by twelve hour intervals. Thus from 1,800 to 2,400 milligram hours are applied. He advises this temporary ray castration without waiting too long, and lauds the benefit in many cases from this suspension of ovarian functioning for several months to a year and a half, restoring the woman to active life, with the gradual return of normal menstruation without injurious by-effects.

Sutureless Method of Wound Closure.—Schubert describes a knitting needle method of closing an incision which he has been using for some time. On each side of the wound, a knitting needle, about 1 mm. in diameter, is inserted and pushed through parallel under the skin to the other end of the incision about 5 to 10 mm. from the edges of the straight incision. The skin is punctured for them as the tips of the knitting needles should not be sharp. They pierce the skin from 0.5 to 1.0 cm. beyond each end of the incision. The projecting ends of both needles at one end of the incision are then raised a little by an assistant and the ends are tied together over a pad of gauze. This is repeated with the other ends of the needles, thus coapting the lips of the incision without stitches or clips. The needles are easily removed by twisting them a little. A third needle may be useful in the depths of the incision, and if infection is feared the tips of the needles might be tied together under the skin. The article is illustrated.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 14, 1920, **2**, No. 7

Our Knowledge of Actuality. J. D. C. Koch.—p. 571.
*Import of Hyperindicanemia. W. J. van B. van Vloten.—p. 585.
*Diagnosis of Renal Tuberculosis. E. C. van Rijssel.—p. 590.
*Choosing a Vocation. T. Meinema.—p. 596.

Indican in Serum as Test of Kidney Functioning.—The indican content and urea content of the blood serum of forty patients with different diseases are tabulated to show the variations with dieting and other factors, and the importance of hyperindicanemia for the prognosis. With the simple test described, it is possible in every case of uremia to obtain deeper insight into conditions and foresee the outcome. Haas accepts 1.4 mg. per liter as the limit of the normal range; Rosenberg's limit is from 1.5 to 1.8 mg. The urea and the indican content do not run parallel although when there is uremia there is usually indicanemia, and in one case hyperindicanemia was found before the uremia developed. In one case of contracted kidney the urea was at first 1.17 per thousand, the indican, 1.7 mg. per liter; the figures on repeating the tests were 1.06 and 1.08 urea and 6.4 and 21.3 mg. indican. This patient had been kept on a protein poor diet. In another similar case the urea figures were 1.46, 1.04 and 0.52 per thousand on repeated tests, while the indican figure kept persistently at 4.27 mg. thus testifying that the condition was grave although the urea content was normal. Both of these patients died within a short time with uremic symptoms. The protein-poor diet reduced the uremia but did not modify the hyperindicanemia, and the latter was thus the true basis for the prognosis.

Diagnosis of Renal Tuberculosis.—Van Rijssel is prosector at Rotterdam and he relates that in a comparatively short period recently he had four kidneys sent in for examination which had been removed on the diagnosis of tuberculosis but the microscope failed to reveal a trace of tuberculosis. In two of the cases nonmalignant tumors had been responsible for the symptoms. In both these cases the diagnosis had been based on inoculation of guinea-pigs. The animals may have been already tuberculous when inoculated; care in selecting healthy animals for the test is indispensable. In the two other cases the kidney was apparently normal, although there was a slight apical tuberculous process, in one, and acid-fast bacilli were found in the urine. Even the most experienced bacteriologists are sometimes misled by acid-fast bacilli. The cases teach further that in inoculation of animals the microscope must be used; the unaided eye cannot be depended on. Van Rijssel's recent experience shows that such warnings cannot be reiterated too often.

Choosing a Vocation.—This is a critical review of a number of recent publications bearing on applied psychology and physiology in the choice of a trade or profession, all but one in German or Dutch.

Hospitalstidende, Copenhagen

July 14, 1920, **63**, No. 28

*Vestibule Phenomena with Ocular Paralysis. G. V. T. Borries.—p. 433

Research on the Vestibule with Ocular Paralysis.—Borries expatiates on the theoretical importance of the case he describes in which, with complete paralysis of the voluntary movements of the eyeball toward the left, the nystagmus elicited by way of the vestibule was absolutely normal both to right and left. He discusses the literature on the subject, saying that his case seems to belong to the subcortical group of ocular paralyses according to Bárány's classification.

Hygiea, Stockholm

Aug. 16, 1920, **82**, No. 15

*Mentally Backward Children. H. Kjerrulf.—p. 481.
Epidemic of Typhoid at Sundbyberg, 1919. E. Bolin.—p. 496.

Physical Condition of Mentally Backward Children.—Kjerrulf compares the data from 1,893 children in a regular school with those from 365 in a school for the mentally backward. There was a history of premature birth in 6.2 per cent. of the former and in 16.2 per cent. in the latter group; there were 137 first born and 3.4 per cent. twins among the mentally backward; undescended testicles in 5.6 per cent. of the 215 boys, but the thyroid was of normal size in all but 0.54 per cent. of the mentally backward while it was distinctly enlarged in 4.7 per cent. of the children in the regular school. Ylppö has recently published a protest against classifying cases as congenital debility when in fact premature birth or hemorrhage from birth injury or both are responsible for the abnormal condition. He accepts a weight of 2,500 gm. as the limit below which the birth should be regarded as premature, but Kjerrulf thinks a length of 47 cm. is a better criterion.

Ugeskrift for Læger, Copenhagen

July 29, 1920, **82**, No. 31

*Hemoptysis. I. Rosenthal.—p. 973.

Hemoptysis.—Rosenthal reports that in 85 per cent. of his total 157 hemoptysis patients the course of the tuberculosis was comparatively mild. In 50 per cent. there had been an acute exacerbation before the hemoptysis, and in 37 cases with recurring hemoptysis the mild character of the disease had not been modified. In 46 cases there was no fever at any time while under observation. Hence, he remarks, the hemoptysis in itself cannot be incriminated for the acute exacerbations in the graver cases. Under strict bed rest and morphin, the tendency to hemorrhage rapidly subsided. Visiting and loud speaking are forbidden; only cool, fluid food is allowed, and the bed linen and clothing are not changed during the first few days, merely covered with clean if spotted. An ice bag to the chest helps to immobilize the patient. In the rebellious cases, he gave a mixture of 0.10 gm. each of lead acetate and pulverized digitalis leaves five times a day, stopping if this induced nausea. He never gave it for more than a week and usually only for four or five days at most. Only in 8 of his 157 cases was this called for either by the tenacity of the hemorrhage or its increasing intensity.

Correction: Dog's Milk in Infant Feeding.—In the abstract with this title on page 1029 it is stated that lactation had been kept up for five or six months. The words of the original are: "The boy (*gamin*) said that he had been sucking milk from his dog daily, and that three months had elapsed since its puppy had been taken away. The puppy had been weaned at 2½ months. Feeding with dog's milk could thus be kept up for five or six months."